

α -actinin-4 (D-3): sc-398088

BACKGROUND

The spectrin gene family encodes a diverse group of cytoskeletal proteins that include spectrins, dystrophins and α -actinins. There are four tissue-specific α -actinins, namely α -actinin-1, α -actinin-2, α -actinin-3 and α -actinin-4, which are localized to muscle and non-muscle cells, including skeletal, cardiac and smooth muscle cells, as well as within the cytoskeleton. Each α -actinin protein contains one Actin-binding domain, two calponin-homology domains, two EF-hand domains and four spectrin repeats, through which they function as bundling proteins that can cross-link F-Actin, thus anchoring Actin to a variety of intracellular structures. Defects in the gene encoding α -actinin-4 are the cause of focal segmental glomerulosclerosis 1 (FSGS1), a common renal lesion characterized by decreasing kidney function and, ultimately, renal failure.

REFERENCES

1. Youssoufian, H., et al. 1990. Cloning and chromosomal localization of the human cytoskeletal α -actinin gene reveals linkage to the β -spectrin gene. *Am. J. Hum. Genet.* 47: 62-71.
2. Nishiyama, M., et al. 1990. Expression of human α -actinin in human hepatocellular carcinoma. *Cancer Res.* 50: 6291-6294.
3. Yürüker, B., et al. 1992. α -actinin and vinculin in human neutrophils: reorganization during adhesion and relation to the Actin network. *J. Cell Sci.* 101: 403-414.
4. Knudsen, K.A., et al. 1995. Interaction of α -actinin with the cadherin/catenin cell-cell adhesion complex via α -catenin. *J. Cell Biol.* 130: 67-77.
5. Reinhard, M., et al. 1999. An α -actinin binding site of Zyxin is essential for subcellular Zyxin localization and α -actinin recruitment. *J. Biol. Chem.* 274: 13410-13418.
6. Harper, B.D., et al. 2000. Fine mapping of the α -actinin binding site within cysteine-rich protein. *Biochem. J.* 350: 269-274.
7. Gonzalez, A.M., et al. 2001. Interactions of a hemidesmosome component and actinin family members. *J. Cell Sci.* 114: 4197-4206.

CHROMOSOMAL LOCATION

Genetic locus: ACTN4 (human) mapping to 19q13.2; Actn4 (mouse) mapping to 7 A3.

SOURCE

α -actinin-4 (D-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 495-522 within an internal region of α -actinin-4 of human origin.

PRODUCT

Each vial contains 200 μ g 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-398088 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

α -actinin-4 (D-3) is recommended for detection of α -actinin-4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

α -actinin-4 (D-3) is also recommended for detection of α -actinin-4 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for α -actinin-4 siRNA (h): sc-43101, α -actinin-4 siRNA (m): sc-43102, α -actinin-4 shRNA Plasmid (h): sc-43101-SH, α -actinin-4 shRNA Plasmid (m): sc-43102-SH, α -actinin-4 shRNA (h) Lentiviral Particles: sc-43101-V and α -actinin-4 shRNA (m) Lentiviral Particles: sc-43102-V.

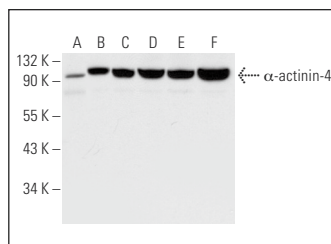
Molecular Weight of α -actinin-4: 105 kDa.

Positive Controls: A-673 cell lysate: sc-2414, HeLa whole cell lysate: sc-2200 or K-562 whole cell lysate: sc-2203.

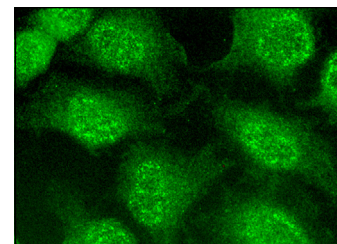
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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



α -actinin-4 (D-3): sc-398088. Western blot analysis of α -actinin-4 expression in NIH/3T3 (A), A-673 (B), HeLa (C), MCF7 (D), SJRH30 (E) and K-562 (F) whole cell lysates.



α -actinin-4 (D-3): sc-398088. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear and cytoplasmic localization.

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.