SANTA CRUZ BIOTECHNOLOGY, INC.

α-actinin-4 (B-11): sc-390180

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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: 62-72.
2. Nishiyama, M., et al. 1990. Expression of human α-actinin in human hepatocellular carcinoma. Cancer Res. 50: 6291-6294.
3. Yürüker, B. and Niggli, V. 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 (B-11) is a mouse monoclonal antibody raised against amino acids 610-660 mapping within an internal region of α-actinin-4 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.

STORAGE

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

APPLICATIONS

α-actinin-4 (B-11) 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 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 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.

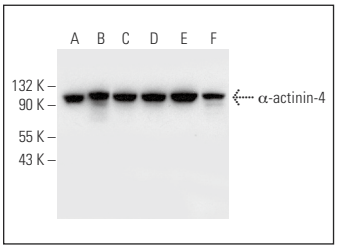
Molecular Weight of α-actinin-4: 105 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, A-673 cell lysate: sc-2414 or MCF7 whole cell lysate: sc-2206.

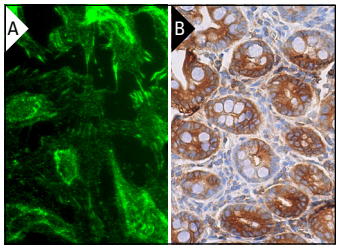
RECOMMENDED SUPPORT REAGENTS

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



α-actinin-4 (B-11): sc-390180. Western blot analysis of α-actinin-4 expression in NIH/3T3 (**A**), A-673 (**B**), MCF7 (**C**), SJRH30 (**D**), K-562 (**E**) and A-431 (**F**) whole cell lysates.



α-actinin-4 (B-11): sc-390180. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoskeletal and nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human colon tissue showing cytoplasmic and membrane staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Balbas, M.D., et al. 2014. MAGI-2 scaffold protein is critical for kidney barrier function. Proc. Natl. Acad. Sci. USA 111: 14876-14881.

RESEARCH USE

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