SANTA CRUZ BIOTECHNOLOGY, INC.

α-actinin-1 (23): sc-135819

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. Inter-action 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.
8. Bois, P.R., et al. 2005. Structural dynamics of α-actinin-vinculin interactions. Mol. Cell. Biol. 25: 6112-6122.

CHROMOSOMAL LOCATION

Genetic locus: ACTN1 (human) mapping to 14q24.1; Actn1 (mouse) mapping to 12 C3.

SOURCE

α-actinin-1 (23) is a mouse monoclonal antibody raised against amino acids 629-825 of α-actinin-1 of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

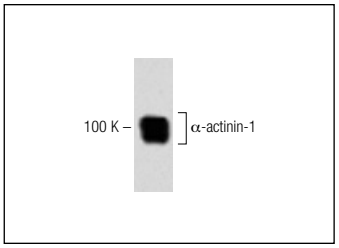
α-actinin-1 (23) is recommended for detection of α-actinin-1 of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)]; may cross-react with α-actinin-4; non cross-reactive with α-actinins found in skeletal muscle.

Suitable for use as control antibody for α-actinin-1 siRNA (h): sc-43095, α-actinin-1 siRNA (m): sc-43096, α-actinin-1 shRNA Plasmid (h): sc-43095-SH, α-actinin-1 shRNA Plasmid (m): sc-43096-SH, α-actinin-1 shRNA (h) Lentiviral Particles: sc-43095-V and α-actinin-1 shRNA (m) Lentiviral Particles: sc-43096-V.

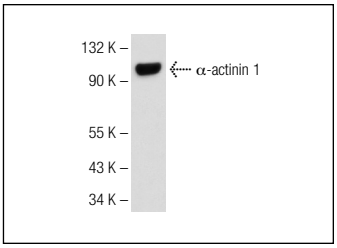
Molecular Weight of α-actinin-1: 100 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204 or HeLa whole cell lysate: sc-2200.

DATA



α-actinin-1 (23): sc-135819. Western blot analysis of α-actinin-1 expression in Jurkat whole cell lysate.



α-actinin-1 (23): sc-135819. Western blot analysis of α-actinin-1 expression in HeLa whole cell lysate.

SELECT PRODUCT CITATIONS

1. Shao, H., et al. 2010. α-actinin-4 is essential for maintaining the spreading, motility and contractility of fibroblasts. PLoS ONE 5: e13921.

STORAGE

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

PROTOCOLS

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

CONJUGATES

See **α-actinin (H-2): sc-17829** for α-actinin antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647.