

α -actinin-4 (LW-M23): sc-134236

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. Yousoufian, 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.

CHROMOSOMAL LOCATION

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

SOURCE

α -actinin-4 (LW-M23) is a mouse monoclonal antibody raised against recombinant α -actinin-4 protein of human origin.

PRODUCT

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

APPLICATIONS

α -actinin-4 (LW-M23) is recommended for detection of α -actinin-4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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), 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.

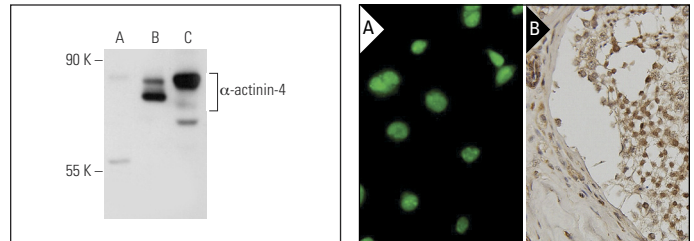
Molecular Weight of α -actinin-4: 105 kDa.

Positive Controls: α -actinin-4 (h): 293T Lysate: sc-176191, MCF7 whole cell lysate: sc-2206 or HeLa whole cell lysate: sc-2200.

STORAGE

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

DATA



α -actinin-4 (LW-M23): sc-134236. Western blot analysis of α -actinin-4 expression in non-transfected 293T: sc-117752 (A), human α -actinin-4 transfected 293T: sc-176191 (B) and HeLa (C) whole cell lysates.

α -actinin-4 (LW-M23): sc-134236. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (A). Immunoperoxidase staining of formalin-fixed, paraffin-embedded human testis tissue showing nuclear and cytoplasmic localization (B).

SELECT PRODUCT CITATIONS

1. Khositseth, S., et al. 2011. Quantitative protein and mRNA profiling shows selective post-transcriptional control of protein expression by vasopressin in kidney cells. *Mol. Cell. Proteomics* 10: M110.004036.
2. Won, K.J., et al. 2013. Monoclonal antibody against α -actinin 4 from human umbilical vein endothelial cells inhibits endothelium-dependent vasorelaxation. *J. Vasc. Res.* 50: 210-220.
3. Suvanto, M., et al. 2015. Podocyte proteins in congenital and minimal change nephrotic syndrome. *Clin. Exp. Nephrol.* 19: 481-488.
4. Lu, W.S., et al. 2015. Effects of Astragaloside IV on diabetic nephropathy in rats. *Genet. Mol. Res.* 14: 5427-5434.
5. Zhao, X., et al. 2015. α -actinin 4 potentiates nuclear factor κ -light-chain-enhancer of activated B-cell (NF κ B) activity in podocytes independent of its cytoplasmic Actin binding function. *J. Biol. Chem.* 290: 338-349.
6. Bi, Q., et al. 2015. MTBP inhibits migration and metastasis of hepatocellular carcinoma. *Clin. Exp. Metastasis* 32: 301-311.
7. Wang, Q., et al. 2018. NHERF1 inhibits β -catenin-mediated proliferation of cervical cancer cells through suppression of α -actinin-4 expression. *Cell Death Dis.* 9: 668.
8. Wang, Q., et al. 2019. HPV16 E6 promotes cervical cancer cell migration and invasion by downregulation of NHERF1. *Int. J. Cancer* 144: 1619-1632.
9. Na, K.R., et al. 2021. Mitochondrial dysfunction in podocytes caused by CRIF1 deficiency leads to progressive albuminuria and glomerular sclerosis in mice. *Int. J. Mol. Sci.* 22: 4827.

RESEARCH USE

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