

α -actinin-4 (G-4): sc-390205

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.

CHROMOSOMAL LOCATION

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

SOURCE

α -actinin-4 (G-4) 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 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

α -actinin-4 (G-4) is available conjugated to agarose (sc-390205 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-390205 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390205 PE), fluorescein (sc-390205 FITC), Alexa Fluor[®] 488 (sc-390205 AF488), Alexa Fluor[®] 546 (sc-390205 AF546), Alexa Fluor[®] 594 (sc-390205 AF594) or Alexa Fluor[®] 647 (sc-390205 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-390205 AF680) or Alexa Fluor[®] 790 (sc-390205 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

α -actinin-4 (G-4) 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), 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.

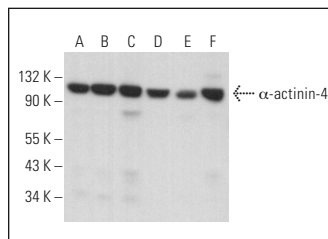
Molecular Weight of α -actinin-4: 105 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, A-10 cell lysate: sc-3806 or A-673 cell lysate: sc-2414.

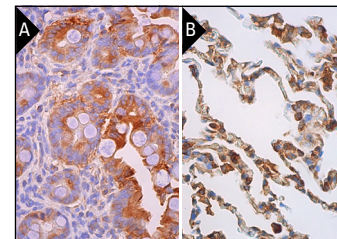
STORAGE

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 (G-4): sc-390205. Western blot analysis of α -actinin-4 expression in A-673 (A), MCF7 (B), Sol8 (C), Neuro-2A (D), EOC 20 (E) and A-10 (F) whole cell lysates.



α -actinin-4 (G-4): sc-390205. Immunoperoxidase staining of formalin fixed, paraffin-embedded human colon tissue showing cytoplasmic staining of glandular cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lung tissue showing cytoplasmic staining of pneumocytes and macrophages (B).

SELECT PRODUCT CITATIONS

- Liu, X.Y., et al. 2015. RIP1 kinase is an oncogenic driver in melanoma. *Cancer Res.* 75: 1736-1748.
- Taniuchi, K., et al. 2018. WAVE2 is associated with poor prognosis in pancreatic cancers and promotes cell motility and invasiveness via binding to ACTN4. *Cancer Med.* 7: 5733-5751.
- Paradzik, M., et al. 2020. KANK2 links α V β 5 focal adhesions to microtubules and regulates sensitivity to microtubule poisons and cell migration. *Front. Cell Dev. Biol.* 8: 125.
- Wu, K., et al. 2021. Exosomal miR-19a and IBSP cooperate to induce osteolytic bone metastasis of estrogen receptor-positive breast cancer. *Nat. Commun.* 12: 5196.
- Castle, E.L., et al. 2021. Viral manipulation of a mechanoresponsive signaling axis disassembles processing bodies. *Mol. Cell. Biol.* 41: e0039921.
- Scalzitti, S., et al. 2022. Lnc-SMaRT translational regulation of Spire1, a new player in muscle differentiation. *J. Mol. Biol.* 434: 167384.
- Ceccarelli, L., et al. 2022. Human microglia extracellular vesicles derived from different microglia cell lines: similarities and differences. *ACS Omega* 7: 23127-23137.
- He, C., et al. 2022. Epigallocatechin gallate induces the demethylation of actinin α 4 to inhibit diabetic nephropathy renal fibrosis via the NF κ B signaling pathway *in vitro*. *Dose Response* 20: 15593258221105704.
- Haines, A., et al. 2023. *Chlamydia trachomatis* subverts α -actinins to stabilize its inclusion. *Microbiol. Spectr.* 11: e0261422.

RESEARCH USE

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

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