

α -Actin (1A4): sc-32251

BACKGROUND

All eukaryotic cells express Actin, which often constitutes as much as 50% of total cellular protein. Actin filaments can form both stable and labile structures and are crucial components of microvilli and the contractile apparatus of muscle cells. While lower eukaryotes, such as yeast, have only one Actin gene, higher eukaryotes have several isoforms encoded by a family of genes. α -Actin expression is limited to various types of muscle, whereas β - and γ - are the principle constituents of filaments in other tissues. Members of the small GTPase family regulate the organization of the Actin cytoskeleton. Rho controls the assembly of Actin stress fibers and focal adhesion, Rac regulates Actin filament accumulation at the plasma membrane and Cdc42 stimulates formation of filopodia.

CHROMOSOMAL LOCATION

Genetic locus: ACTA2 (human) mapping to 10q23.31; Acta2 (mouse) mapping to 19 C1.

SOURCE

α -Actin (1A4) is a mouse monoclonal antibody raised against an N-terminal decapeptide of smooth muscle α -Actin 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 -Actin (1A4) is available conjugated to agarose (sc-32251 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-32251 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-32251 PE), fluorescein (sc-32251 FITC), Alexa Fluor[®] 488 (sc-32251 AF488), Alexa Fluor[®] 546 (sc-32251 AF546), Alexa Fluor[®] 594 (sc-32251 AF594) or Alexa Fluor[®] 647 (sc-32251 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-32251 AF680) or Alexa Fluor[®] 790 (sc-32251 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

α -Actin (1A4) is recommended for detection of smooth muscle α -Actin 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); non cross-reactive with actin from fibroblasts (β - and γ -cytoplasmic), myocardium (α -myocardial), and striated muscle (α -sarcomeric).

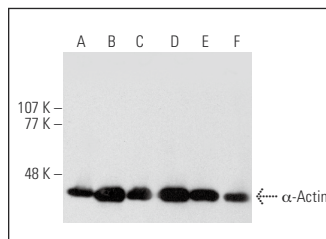
Suitable for use as control antibody for ACTA2 siRNA (h): sc-43590, ACTA2 siRNA (m): sc-43591, ACTA2 shRNA Plasmid (h): sc-43590-SH, ACTA2 shRNA Plasmid (m): sc-43591-SH, ACTA2 shRNA (h) Lentiviral Particles: sc-43590-V and ACTA2 shRNA (m) Lentiviral Particles: sc-43591-V.

Molecular Weight of α -Actin: 43 kDa.

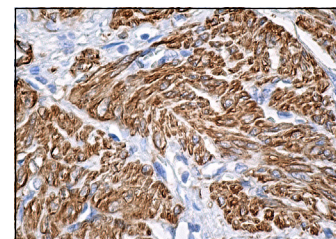
STORAGE

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

DATA



α -Actin (1A4) HRP: sc-32251 HRP. Direct western blot analysis of α -Actin expression in C2C12 (A), A-10 (B), NIH/3T3 (C), BC₃H1 (D) and Sol8 (E) whole cell lysates and human heart tissue extract (F).



α -Actin (1A4): sc-32251. Immunoperoxidase staining of formalin fixed, paraffin-embedded human smooth muscle tissue showing cytoplasmic and cytoskeletal staining of smooth muscle cells.

SELECT PRODUCT CITATIONS

- Jacque, J.M., et al. 2006. The inner-nuclear-envelope protein emerlin regulates HIV-1 infectivity. *Nature* 441: 641-645.
- Traister, A., et al. 2012. ILK induces cardiomyogenesis in the human heart. *PLoS ONE* 7: e37802.
- Wang, Y., et al. 2013. Dietary supplementation of blueberry juice enhances hepatic expression of metallothionein and attenuates liver fibrosis in rats. *PLoS ONE* 8: e58659.
- Jasna, J.M., et al. 2014. Paraoxonase enzyme protects retinal pigment epithelium from chlorpyrifos insult. *PLoS ONE* 9: e101380.
- Zhao, J., et al. 2015. Detrusor myocyte autophagy protects the bladder function via inhibiting the inflammation in cyclophosphamide-induced cystitis in rats. *PLoS ONE* 10: e0122597.
- Carthy, J.M., et al. 2016. Commercially available preparations of recombinant Wnt3a contain non-Wnt related activities which may activate TGF- β Signaling. *J. Cell. Biochem.* 117: 938-945.
- Dale, M., et al. 2017. Premature aortic smooth muscle cell differentiation contributes to matrix dysregulation in Marfan syndrome. *PLoS ONE* 12: e0186603.
- Iannolo, G., et al. 2018. MiR34 inhibition induces human heart progenitor proliferation. *Cell Death Dis.* 9: 368.
- Sasaki, H., et al. 2019. Establishment of renal proximal tubule cell lines derived from the kidney of p53 knockout mice. *Cytotechnology* 71: 45-56.
- Bhedi, C.D., et al. 2020. Glycolysis regulated transglutaminase 2 activation in cardiopulmonary fibrogenic remodeling. *FASEB J.* 34: 930-944.
- Du, J.K., et al. 2021. A novel role of kallikrein-related peptidase 8 in the pathogenesis of diabetic cardiac fibrosis. *Theranostics* 11: 4207-4231.

RESEARCH USE

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