SANTA CRUZ BIOTECHNOLOGY, INC.

α-Actin (1A4): sc-32251

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. At least six types of Actin are present in mammalian tissues and fall into three classes. 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 amino acids 1-10 mapping at the N-terminus of smooth muscle α-Actin 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.

α-Actin (1A4) is available conjugated to agarose (sc-32251 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-32251 HRP), 200 µg/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 µg/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 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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 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); non cross-reactive with actin from fibroblasts (β-and γ-cytoplasmic), myocardium (α-myocardial), and striated muscle (α-sarcomeric).

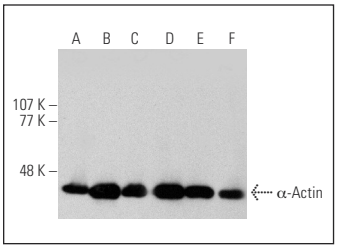
Suitable for use as control antibody for ACTA2 siRNA (h): sc-43590, ACTA2 siRNA (m): sc-43591, ACTA2 shRNA Plasmid (h): sc-43590-SH, ACTA2 shRNA Plasmid (m): sc-43591-SH, ACTA2 shRNA (h) Lentiviral Particles: sc-43590-V and ACTA2 shRNA (m) Lentiviral Particles: sc-43591-V.

Molecular Weight of α-Actin: 43 kDa.

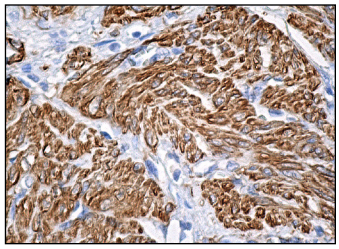
STORAGE

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**), BC_3H1 (**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

1. Jacque, J.M., et al. 2006. The inner-nuclear-envelope protein emerin regulates HIV-1 infectivity. Nature 441: 641-645.
2. Lanuti, P., et al. 2006. Parallel regulation of PKC-α and PKC-δ characterizes the occurrence of erythroid differentiation from human primary hematopoietic progenitors. Exp. Hematol. 34: 1624-1634.
3. Yuecheng, Y., et al. 2006. Clinical evaluation of E-cadherin expression and its regulation mechanism in epithelial ovarian cancer. Clin. Exp. Metastasis 23: 65-74.
4. Cheng, G.S., et al. 2017. Bone marrow-derived mesenchymal stem cells modified with IGFBP-3 inhibit the proliferation of pulmonary artery smooth muscle cells. Int. J. Mol. Med. 39: 223-230.
5. Di Gregorio, J., et al. 2017. Role of glycogen synthase kinase-3β and PPAR-γ on epithelial-to-mesenchymal transition in DSS-induced colorectal fibrosis. PLoS ONE 12: e0171093.
6. Da Ros, M., et al. 2017. FYCO1 and autophagy control the integrity of the haploid male germ cell-specific RNP granules. Autophagy 13: 302-321.
7. Pan, X., et al. 2017. Mice, double deficient in lysosomal serine carboxypeptidases Scpep1 and Cathepsin A develop the hyperproliferative vesicular corneal dystrophy and hypertrophic skin thickenings. PLoS ONE 12: e0172854.
8. Li, R., et al. 2017. Self-assembled N-cadherin mimetic peptide hydrogels promote the chondrogenesis of mesenchymal stem cells through inhibition of canonical Wnt/β-catenin signaling. Biomaterials 145: 33-43.
9. Feng, D., et al. 2017. Expression and alteration of BKCa channels in the sphincter of Oddi's from rabbits with hypercholesterolemia. Channels. E-published.

RESEARCH USE

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