

α -Actin (SPM332): sc-56499

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 -Actin and γ -Actin 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 (SPM332) 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.

APPLICATIONS

α -Actin (SPM332) is recommended for detection of smooth muscle α -Actin of mouse, rat, human and bovine 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.

Positive Controls: BC₃H1 cell lysate: sc-2299, A-10 cell lysate: sc-3806 or IMR-32 cell lysate: sc-2409.

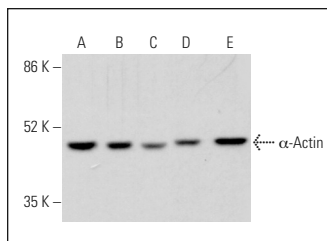
STORAGE

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

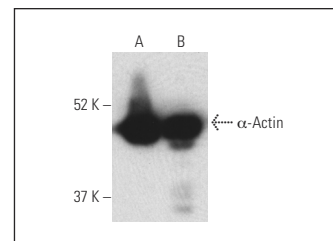
RESEARCH USE

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

DATA



α -Actin (SPM332): sc-56499. Western blot analysis of α -Actin expression in A-673 (A), IMR-32 (B), HeLa (C), A-431 (D) and HL-60 (E) whole cell lysates.



α -Actin (SPM332): sc-56499. Western blot analysis of α -Actin expression in BC₃H1 (A) and A-10 (B) whole cell lysates. Detection reagent used: m-IgG κ BP-HRP: sc-516102.

SELECT PRODUCT CITATIONS

- Chen, Y., et al. 2010. PKC α -induced drug resistance in pancreatic cancer cells is associated with transforming growth factor- β 1. *J. Exp. Clin. Cancer Res.* 29: 104.
- Aguilar, H.N., et al. 2012. Rho-kinase mediates diphosphorylation of Myosin regulatory light chain in cultured uterine, but not vascular smooth muscle cells. *J. Cell. Mol. Med.* 16: 2978-2989.
- Mukherjee, S., et al. 2013. Ca²⁺ oscillations, Ca²⁺ sensitization, and contraction activated by protein kinase C in small airway smooth muscle. *J. Gen. Physiol.* 141: 165-178.
- Zhang, L., et al. 2016. Activation of cold-sensitive channels TRPM8 and TRPA1 inhibits the proliferative airway smooth muscle cell phenotype. *Lung* 194: 595-603.
- Elcin, A.E., et al. 2017. Differential gene expression profiling of human adipose stem cells differentiating into smooth muscle-like cells by TGF β 1/BMP4. *Exp. Cell Res.* 352: 207-217.
- Asensio, J.A., et al. 2018. Allopregnanolone alters follicular and luteal dynamics during the estrous cycle. *Reprod. Biol. Endocrinol.* 16: 35.
- Kovacs, L., et al. 2019. PFKFB3 in smooth muscle promotes vascular remodeling in pulmonary arterial hypertension. *Am. J. Respir. Crit. Care Med.* 200: 617-627.
- Wang, Y., et al. 2020. FOXM1 inhibition ameliorates renal interstitial fibrosis by decreasing extracellular matrix and epithelial-mesenchymal transition. *J. Pharmacol. Sci.* 143: 281-289.
- Wang, L., et al. 2021. Myeloid Pfkfb3 deficiency protects mice from hypoxia-induced pulmonary hypertension. *Br. J. Pharmacol.* 178: 1055-1072.

CONJUGATES

See **α -Actin (1A4): sc-32251** for α -Actin antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor[®] 488, 546, 594, 647, 680 and 790.