SANTA CRUZ BIOTECHNOLOGY, INC.

α-Actin (Alpha Sr-1): sc-58671

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. Cdc42 stimulates formation of filopodia.

REFERENCES

1. Doolittle, R.F. 1995. The origins and evolution of eukaryotic proteins. Philos. Trans. R. Soc. Lond., B, Biol. Sci. 349: 235-240.
2. Maccioni, R.B., et al. 1995. Role of microtubule-associated proteins in the control of microtubule assembly. Physiol. Rev. 75: 835-864.

CHROMOSOMAL LOCATION

Genetic locus: ACTA1 (human) mapping to 1q42.13, ACTC1 (human) mapping to 15q14; Acta1 (mouse) mapping to 8 E2, Actc1 (mouse) mapping to 2 E4.

SOURCE

α-Actin (Alpha Sr-1) is a mouse monoclonal antibody raised against Actin of rabbit origin.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

α-Actin (Alpha Sr-1) is recommended for detection of α-skeletal and α-cardiac Actin of mouse, rat, human and *Xenopus laevis* origin by Western Blotting (starting dilution 1:200, dilution range 1:10-1:200), 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); not recommended for detection of α-Actin from smooth muscle tissue.

α-Actin (Alpha Sr-1) is also recommended for detection of α-skeletal and α-cardiac Actin in additional species, including bovine and rabbit.

Molecular Weight of α-Actin: 43 kDa.

Positive Controls: A-10 cell lysate: sc-3806, rat skeletal muscle extract: sc-364810 or mouse skeletal muscle extract: sc-364250.

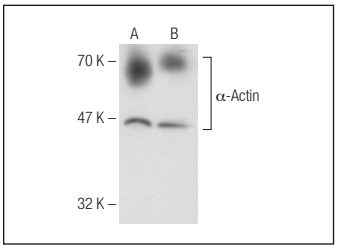
RESEARCH USE

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

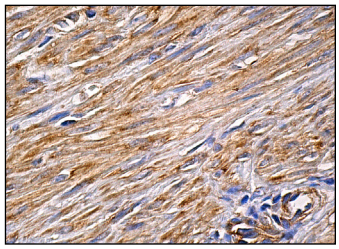
STORAGE

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

DATA



α-Actin (Alpha Sr-1): sc-58671. Western blot analysis of α-Actin expression in rat skeletal muscle (**A**) and mouse skeletal muscle (**B**) tissue extracts.



α-Actin (Alpha Sr-1): sc-58671. Immunoperoxidase staining of formalin fixed, paraffin-embedded human smooth muscle tissue showing cytoplasmic and cytoskeletal staining of smooth muscle cells.

SELECT PRODUCT CITATIONS

1. Costa, A.R., et al. 2011. Optical mapping of cryoinjured rat myocardium grafted with mesenchymal stem cells. Am. J. Physiol. Heart Circ. Physiol. 302: H270-H277.
2. Zhu, H.M. and Deng, L. 2012. Evaluation of cardiomyocyte hypoxia injury models for the pharmacological study *in vitro*. Pharm. Biol. 50: 167-174.
3. Gaval-Cruz, M., et al. 2016. Chronic loss of noradrenergic tone produces β-arrestin2-mediated cocaine hypersensitivity and alters cellular D2 responses in the nucleus accumbens. Addict. Biol. 21: 35-48.
4. Jorgensen, L.H., et al. 2017. SPARC interacts with Actin in skeletal muscle *in vitro* and *in vivo*. Am. J. Pathol. 187: 457-474.
5. Joung, H., et al. 2018. Sumoylation of histone deacetylase 1 regulates MyoD signaling during myogenesis. Exp. Mol. Med. 50: e427.
6. Yuan, S.M. and Wu, N. 2018. Aortic α-smooth muscle actin expressions in aortic disorders and coronary artery disease: an immunohistochemical study. Anatol. J. Cardiol. 19: 11-16.
7. Li, L., et al. 2018. Ferroptosis is associated with oxygen-glucose deprivation/reoxygenation-induced Sertoli cell death. Int. J. Mol. Med. 41: 3051-3062.
8. Peres Diaz, L.S., et al. 2018. Angiotensin II requires an intact cardiac thyrotropin-releasing hormone (TRH) system to induce cardiac hypertrophy in mouse. J. Mol. Cell. Cardiol. 124: 1-11.
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