SANTA CRUZ BIOTECHNOLOGY, INC.

Muscle Actin (5G2): sc-71626

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 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.

REFERENCES

1. Tsukada, T., et al. 1987. HHF35, a muscle Actin-specific monoclonal antibody. I. Immunocytochemical and biochemical characterization. Am. J. Pathol. 126: 51-60.
2. Tsukada, T., et al. 1987. HHF35, a muscle Actin-specific monoclonal antibody. II. Reactivity in normal, reactive, and neoplastic human tissues. Am. J. Pathol. 127: 389-402.
3. Miettinen, M. 1988. Antibody specific to muscle Actins in the diagnosis and clas tissue tumors. Am. J. Pathol. 130: 205-215.
4. Schmidt, R.A., et al. 1988. Diagnosis of rhabdomyosarcomas with HHF35, a monoclonal antibody directed against muscle Actins. Am. J. Pathol. 131: 19-28.
5. Doolittle, R.F. 1995. The origins and evolution of eukaryotic proteins. Philol. Trans. R. Soc. Lond. B, Biol. Sci. 349: 235-240.
6. Maccioni, R.B., et al. 1995. Role of microtubule-associated proteins in the control of microtubule assembly. Physiol. Rev. 75: 835-864.
7. Schutt, C.E., et al. 1995. A discourse on modeling F-Actin. J. Struct. Biol. 115: 186-198.
8. Barkalow, K., et al. 1995. Actin cytoskeleton. Setting the pace of cell movement. Curr. Biol. 5: 1000-1002.

CHROMOSOMAL LOCATION

Genetic locus: ACTG2 (human) mapping to 2p13.1; Actg2 (mouse) mapping to 6 C3.

SOURCE

Muscle Actin (5G2) is a mouse monoclonal antibody raised against myocardium of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

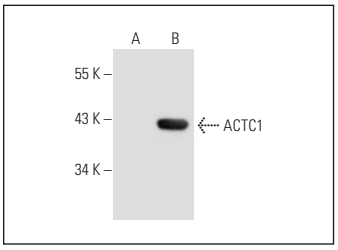
Muscle Actin (5G2) is recommended for detection of muscle specific α and β Actin isomers of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with β Actin isomers.

Suitable for use as control antibody for Actin siRNA (h): sc-29191, Actin siRNA (m): sc-29192, Actin shRNA Plasmid (h): sc-29191-SH, Actin shRNA Plasmid (m): sc-29192-SH, Actin shRNA (h) Lentiviral Particles: sc-29191-V and Actin shRNA (m) Lentiviral Particles: sc-29192-V.

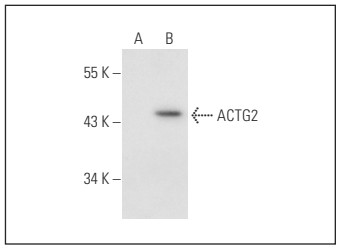
Molecular Weight of Muscle Actin: 43 kDa.

Positive Controls: ACTC1 (m): 293T Lysate: sc-126392, Sol8 cell lysate: sc-2249 or A-431 whole cell lysate: sc-2201.

DATA



Muscle Actin (5G2): sc-71626. Western blot analysis of ACTC1 expression in non-transfected: sc-117752 (**A**) and mouse ACTC1 transfected: sc-126392 (**B**) 293T whole cell lysates.



Muscle Actin (5G2): sc-71626. Western blot analysis of ACTG2 expression in non-transfected: sc-117752 (**A**) and mouse ACTG2 transfected: sc-118229 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Zhou, X.L., et al. 2017. Thalidomide Inhibits TGF-β1-induced epithelial to mesenchymal transition in alveolar epithelial cells via Smad-dependent and Smad-independent signaling pathways. Sci. Rep. 7: 14727.
2. Tan, W.J., et al. 2017. Calpain 1 regulates TGF-β1-induced epithelial-mesenchymal transition in human lung epithelial cells via PI3K/Akt signaling pathway. Am. J. Transl. Res. 9: 1402-1409.
3. Tan, Q.Y. and Cheng, Z.S. 2018. TGFβ1-Smad signaling pathway participates in interleukin-33 induced epithelial-to-mesenchymal transition of A549 cells. Cell. Physiol. Biochem. 50: 757-767.

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.