SANTA CRUZ BIOTECHNOLOGY, INC.

Actin (MM2/193): sc-81760

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. 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. and Cambiazo, V. 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; Acta1 (mouse) mapping to 8 E2.

SOURCE

Actin (MM2/193) is a mouse monoclonal antibody raised against platelet membranes of human 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

Actin (MM2/193) is recommended for detection of Actin in platelet lysates 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)] and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

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 Actin: 43 kDa.

Positive Controls: C32 whole cell lysate: sc-2205, HeLa whole cell lysate: sc-2200 or IMR-32 cell lysate: sc-2409.

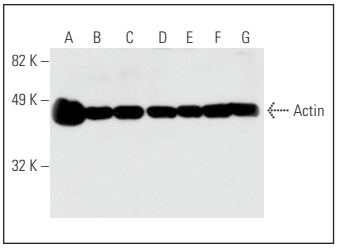
STORAGE

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

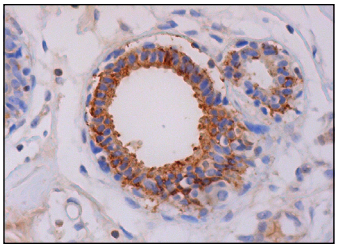
RESEARCH USE

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

DATA



Actin (MM2/193): sc-81760. Western blot analysis of Actin expression in human platelet extract (**A**) and U-937 (**B**), C32 (**C**), HeLa (**D**), IMR-32 (**E**), NIH/3T3 (**F**) and HL-60 (**G**) whole cell lysates.



Actin (MM2/193): sc-81760. Immunoperoxidase staining of formalin fixed, paraffin-embedded human breast tissue showing cytoplasmic staining of glandular cells and myoepithelial cells.

SELECT PRODUCT CITATIONS

1. Calvaruso, G., et al. 2006. Bortezomib induces in Hep G2 cells IκBα degradation mediated by caspase-8. Mol. Cell. Biochem. 287: 13-19.
2. Calvaruso, G., et al. 2007. HSP 72 controls bortezomib-induced Hep G2 cell death via interaction with pro-apoptotic factors. Oncol. Rep. 18: 447-450.
3. Das, T., et al. 2008. Renal cell carcinoma tumors induce T cell apoptosis through receptor-dependent and receptor-independent pathways. J. Immunol. 180: 4687-4696.
4. Kharlamov, E.A., et al. 2011. Alterations of $GABA_A$ and glutamate receptor subunits and heat shock protein in rat hippocampus following traumatic brain injury and in posttraumatic epilepsy. Epilepsy Res. 95: 20-34.
5. Ni, B., et al. 2013. Glycyrrhizin protects spinal cord and reduces inflammation in spinal cord ischemia-reperfusion injury. Int. J. Neurosci. 123: 745-751.
6. Li, Z., et al. 2016. Overexpression of microRNA-210 promotes chondrocyte proliferation and extracellular matrix deposition by targeting HIF-3α in osteoarthritis. Mol. Med. Rep. 13: 2769-2776.
7. Zhuang, Z., et al. 2017. Notch 1 is a valuable therapeutic target against cell survival and proliferation in clear cell renal cell carcinoma. Oncol. Lett. 14: 3437-3444.
8. Hatzi, K., et al. 2019. Histone demethylase LSD1 is required for germinal center formation and BCL6-driven lymphomagenesis. Nat. Immunol. 20: 86-96.
9. Xu, H., et al. 2020. Inhibition of pyruvate dehydrogenase kinase-1 by dicoumarol enhances the sensitivity of hepatocellular carcinoma cells to oxaliplatin via metabolic reprogramming. Int. J. Oncol. 57: 733-742.

CONJUGATES

See **β-Actin (C4): sc-47778** for β-Actin antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.