

α -Actin (5C5): sc-58670

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.

REFERENCES

- Schutt, C.E., et al. 1995. A discourse on modeling F-Actin. *J. Struct. Biol.* 115: 186-198.
- 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 (5C5) is a mouse monoclonal antibody raised against Actin of rabbit origin.

PRODUCT

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

APPLICATIONS

α -Actin (5C5) is recommended for detection of α -skeletal and α -cardiac Actin of mouse, rat, human, rabbit, bovine and *Xenopus laevis* 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) 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.

Molecular Weight of α -Actin: 43 kDa.

Positive Controls: IMR-32 cell lysate: sc-2409, rat skeletal muscle extract: sc-364810 or rat heart extract: sc-2393.

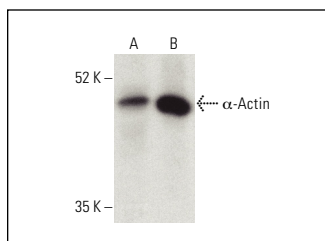
STORAGE

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

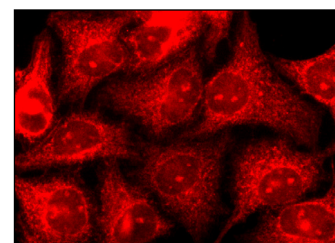
RESEARCH USE

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

DATA



α -Actin (5C5): sc-58670. Western blot analysis of α -Actin expression in rat skeletal muscle (A) and rat heart (B) tissue extracts. Detection reagent used: m-IgG κ BP-HRP: sc-516102.



α -Actin (5C5): sc-58670. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

- Mödder, U.I., et al. 2011. Wnt10b activates the Wnt, notch, and NF κ B pathways in U2OS osteosarcoma cells. *J. Cell. Biochem.* 112: 1392-1402.
- Roy, C., et al. 2013. Relationship of C5L2 receptor to skeletal muscle substrate utilization. *PLoS ONE* 8: e57494.
- Lan, J.Y., et al. 2014. Depolarization of cellular resting membrane potential promotes neonatal cardiomyocyte proliferation *in vitro*. *Cell. Mol. Bioeng.* 7: 432-445.
- Sheng, X., et al. 2015. Divergent androgen regulation of unfolded protein response pathways drives prostate cancer. *EMBO Mol. Med.* 7: 788-801.
- Sin, J., et al. 2016. Mitophagy is required for mitochondrial biogenesis and myogenic differentiation of C2C12 myoblasts. *Autophagy* 12: 369-380.
- Morgan, K.Y., et al. 2017. Investigation into the effects of varying frequency of mechanical stimulation in a cycle-by-cycle manner on engineered cardiac construct function. *J. Tissue Eng. Regen. Med.* 11: 342-353.
- Gagaoua, M., et al. 2017. Associations among protein biomarkers and pH and color traits in longissimus thoracis and rectus abdominis muscles in protected designation of origin maine-anjou cull cows. *J. Agric. Food Chem.* 65: 3569-3580.
- Gagaoua, M., et al. 2018. Reverse phase protein array for the quantification and validation of protein biomarkers of beef qualities: the case of meat color from Charolais breed. *Meat Sci.* 145: 308-319.
- Follis, A.V., et al. 2018. Regulation of apoptosis by an intrinsically disordered region of Bcl-x_L. *Nat. Chem. Biol.* 14: 458-465.



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.