SANTA CRUZ BIOTECHNOLOGY, INC.

Actin (5F130): sc-70317

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.
3. Schutt, C.E., Rozycki, M.D., Myslik, J.C. and Lindberg, U. 1995. A discourse on modeling F-Actin. J. Struct. Biol. 115: 186-198.
4. Barkalow, K. and Hartwig, J.H. 1995. Actin cytoskeleton. Setting the pace of cell movement. Curr. Biol. 5: 1000-1002.
5. Nobes, C.D. and Hall, A. 1995. Rho, Rac, and Cdc42 GTPases regulate the assembly of multimolecular focal complexes associated with Actin stress fibers, lamellipodia, and filopodia. Cell 81: 53-62.
6. Graf, R., Neudeck, H., Gossrau, R. and Vetter, K. 1996. Elastic fibres are an essential component of human placental stem villous stroma and an integrated part of the perivascular contractile sheath. Cell Tissue Res. 283: 133-141.
7. Furumura, M. and Ishikawa, H. 1996. Actin bundles in human hair follicles as revealed by confocal laser microscopy. Cell Tissue Res. 283: 425-434.
8. Chebotareva, N.V., Bobkova, I.N., Varshavskii, V.A., Golitsyna, E.P. and Kozlovskaia, L.V. 2006. The role of smooth muscle α-Actin in development of renal fibrosis in patients with chronic glomerulonephritis Ter. Arkh. 78: 17-21.
9. Graham, D.B., Cella, M., Giurisato, E., Fujikawa, K., Miletic, A.V., Kloeppel, T., Brim, K., Takai, T., Shaw, A.S., Colonna, M. and Swat, W. 2006. Vav1 controls DAP10-mediated natural cytotoxicity by regulating Actin and microtubule dynamics. J. Immunol. 177: 2349-2355.

SOURCE

Actin (5F130) is a mouse monoclonal antibody raised against skeletal muscle-cell preparation of chicken origin.

PRODUCT

Each vial contains 500 µl culture supernatant containing IgM with < 0.1% sodium azide.

APPLICATIONS

Actin (5F130) is recommended for detection of Actin of chicken origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:10-1:200) and immunofluorescence (starting dilution to be determined by researcher, dilution range 1:10-1:200).

Molecular Weight of Actin: 43 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgM-HRP: sc-2064 (dilution range: 1:500-1:5,000), TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-mouse IgM-FITC: sc-2082 (dilution range: 1:100-1:400) or goat anti-mouse IgM-TR: sc-2983 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.