SANTA CRUZ BIOTECHNOLOGY, INC.

γ-Actin (2-4): sc-65634

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., et al. 1995. Role of microtubule-associated proteins in the control of microtubule assembly. Physiol. Rev. 75: 835-864.
3. Schutt, C.E., et al. 1995. A discourse on modeling F-Actin. J. Struct. Biol. 115: 186-198.
4. Barkalow, K., et al. 1995. Actin cytoskeleton. Setting the pace of cell movement. Curr. Biol. 5: 1000-1002.
5. Nobes, C.D., et al. 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., et al. 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.

CHROMOSOMAL LOCATION

Genetic locus: ACTG1 (human) mapping to 17q25.3; Actg1 (mouse) mapping to 11 E2.

SOURCE

γ-Actin (2-4) is a mouse monoclonal antibody raised against cytoplasmic γ-Actin from brain tissue of bovine origin.

PRODUCT

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

STORAGE

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

PROTOCOLS

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

APPLICATIONS

γ-Actin (2-4) is recommended for detection of γ-Actin 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 immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

γ-Actin (2-4) is also recommended for detection of γ-Actin in additional species, including bovine.

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.

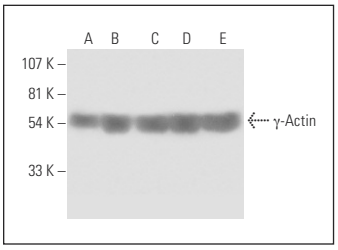
Molecular Weight of γ-Actin: 42 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, C32 whole cell lysate: sc-2205 or Sol8 cell lysate: sc-2249.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



γ-Actin (2-4): sc-65634. Western blot analysis of γ-Actin expression in HeLa (**A**), C32 (**B**), Sol8 (**C**), KNRK (**D**) and NIH/3T3 (**E**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Lee, J., et al. 2010. Membrane proteome analysis of cerulein-stimulated pancreatic acinar cells: implication for early event of acute pancreatitis. Gut Liver 4: 84-93.
2. Moradi, M., et al. 2017. Differential roles of α-, β-, and γ-Actin in axon growth and collateral branch formation in motoneurons. J. Cell Biol. 216: 793-814.

RESEARCH USE

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