SANTA CRUZ BIOTECHNOLOGY, INC.

γ-Actin (1-17): sc-65638

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.

CHROMOSOMAL LOCATION

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

SOURCE

γ-Actin (1-17) 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.

γ-Actin (1-17) is available conjugated to agarose (sc-65638 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-65638 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-65638 PE), fluorescein (sc-65638 FITC), Alexa Fluor® 488 (sc-65638 AF488), Alexa Fluor® 546 (sc-65638 AF546), Alexa Fluor® 594 (sc-65638 AF594) or Alexa Fluor® 647 (sc-65638 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-65638 AF680) or Alexa Fluor® 790 (sc-65638 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

γ-Actin (1-17) 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)], 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).

γ-Actin (1-17) 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.

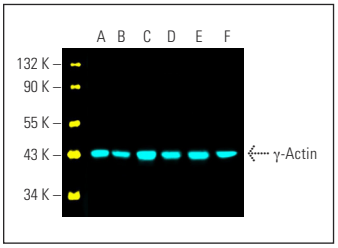
Molecular Weight of γ-Actin: 42 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, KNRK whole cell lysate: sc-2214 or A-431 whole cell lysate: sc-2201.

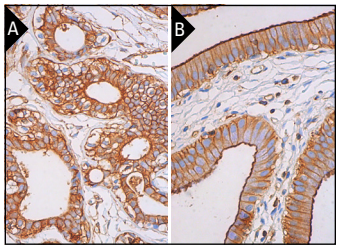
STORAGE

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

DATA



γ-Actin (1-17) Alexa Fluor® 647: sc-65638 AF647. Direct fluorescent western blot analysis of γ-Actin expression in HeLa (**A**), A-431 (**B**), KNRK (**C**), Jurkat (**D**), NIH/3T3 (**E**) and PC-12 (**F**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 488: sc-516790.



γ-Actin (1-17) HRP: sc-65638 HRP. Direct immunoperoxidase staining of formalin fixed, paraffin-embedded human breast (**A**) and human gall bladder (**B**) tissue showing cytoplasmic and membrane staining of glandular cells and myoepithelial cells. Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214.

SELECT PRODUCT CITATIONS

1. Chen, T., et al. 2015. m^6A RNA methylation is regulated by microRNAs and promotes reprogramming to pluripotency. Cell Stem Cell 16: 289-301.
2. Jorgensen, L.H., et al. 2017. SPARC interacts with Actin in skeletal muscle *in vitro* and *in vivo*. Am. J. Pathol. 187: 457-474.
3. Wang, C.X., et al. 2018. METTL3-mediated m^6A modification is required for cerebellar development. PLoS Biol. 16: e2004880.
4. Chen, X., et al. 2019. 5-methylcytosine promotes pathogenesis of bladder cancer through stabilizing mRNAs. Nat. Cell Biol. 21: 978-990.
5. Kim, H., et al. 2020. Motion microscopy for label-free detection of circulating breast tumor cells. Biosens. Bioelectron. 158: 112131.
6. Kaji, I., et al. 2021. Cell differentiation is disrupted by MYO5B loss through Wnt/Notch imbalance. JCI Insight 6: 150416.
7. Dooley, S.A., et al. 2022. Myosin 5b is required for proper localization of the intermicrovillar adhesion complex in the intestinal brush border. Am. J. Physiol. Gastrointest. Liver Physiol. 323: G501-G510.
8. Toniyan, K.A., et al. 2023. Endometriosis of the cervix: a rare clinical case with the possibility of comparing the eutopic and ectopic endometrium at the cellular level. Int. J. Mol. Sci. 24: 2184.
9. Pinto-Dueñas, D.C., et al. 2024. The role of ZO-2 in modulating JAM-A and γ-Actin junctional recruitment, apical membrane and tight junction tension, and cell response to substrate stiffness and topography. Int. J. Mol. Sci. 25: 2453.

RESEARCH USE

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