SANTA CRUZ BIOTECHNOLOGY, INC.

β-Actin (2A3): sc-517582

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-Actin 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. Cdc42 stimulates formation of filopodia.

CHROMOSOMAL LOCATION

Genetic locus: ACTB (human) mapping to 7p22.1; Actb (mouse) mapping to 5 G2.

SOURCE

β-Actin (2A3) is a mouse monoclonal antibody raised against a KLH-coupled peptide fragment corresponding to the C-terminal region of β-Actin of human 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.

β-Actin (2A3) is available conjugated to agarose (sc-517582 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-517582 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-517582 PE), fluorescein (sc-517582 FITC), Alexa Fluor® 488 (sc-517582 AF488), Alexa Fluor® 546 (sc-517582 AF546), Alexa Fluor® 594 (sc-517582 AF594) or Alexa Fluor® 647 (sc-517582 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-517582 AF680) or Alexa Fluor® 790 (sc-517582 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

β-Actin (2A3) is recommended for detection of β-Actin of mouse, rat, human, *Drosophila,* yeast and *C. elegans* 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).

β-Actin (2A3) is also recommended for detection of β-Actin in additional species, including hamster and monkey.

Suitable for use as control antibody for β-Actin siRNA (h): sc-108069, β-Actin siRNA (m): sc-108070, β-Actin shRNA Plasmid (h): sc-108069-SH, β-Actin shRNA Plasmid (m): sc-108070-SH, β-Actin shRNA (h) Lentiviral Particles: sc-108069-V and β-Actin shRNA (m) Lentiviral Particles: sc-108070-V.

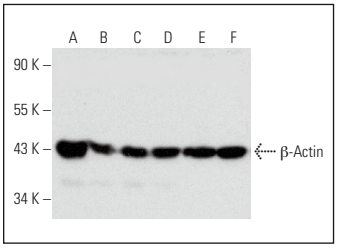
Molecular Weight of β-Actin: 43 kDa.

Molecular Weight of C-terminal region of β-Actin: 15 kDa.

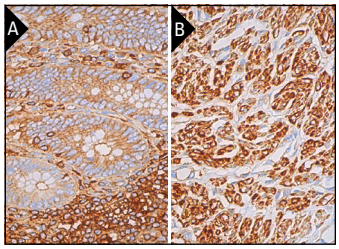
STORAGE

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

DATA



β-Actin (2A3): sc-517582. Western blot analysis of β-Actin expression in WI-38 (**A**), Hs 294T (**B**), HeLa (**C**), C32 (**D**), NIH/3T3 (**E**) and Sol8 (**F**) whole cell lysates.



β-Actin (2A3) HRP: sc-517582 HRP. Direct immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing cytoplasmic and membrane staining of glandular cells and lymphoid cells (**A**). Direct immunoperoxidase staining of formalin fixed, paraffin-embedded of human smooth muscle tissue showing cytoplasmic and membrane staining of smooth muscle cells (**B**). Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214.

SELECT PRODUCT CITATIONS

1. Zhang, Z., et al. 2018. Oral supplementation with ursolic acid ameliorates sepsis-induced acute kidney injury in a mouse model by inhibiting oxidative stress and inflammatory responses. Mol. Med. Rep. 17: 7142-7148.
2. Wang, Y., et al. 2019. Low expression of CRISP3 predicts a favorable prognosis in patients with mammary carcinoma. J. Cell. Physiol. 234: 13629-13638.
3. Morabito, C., et al. 2020. Antioxidant strategy to prevent simulated microgravity-induced effects on bone osteoblasts. Int. J. Mol. Sci. 21: 3638.
4. Palanikumar, L., et al. 2021. Protein mimetic amyloid inhibitor potently abrogates cancer-associated mutant p53 aggregation and restores tumor suppressor function. Nat. Commun. 12: 3962.
5. Urena, F., et al. 2022. T cell activation decreases microRNA-15a/16 levels to promote MEK1-ERK1/2-Elk1 signaling and promote proliferative capacity. J. Biol. Chem. 298: 101634.
6. Shah, P.P. and Beverly, L.J. 2023. UBQLN family members regulate Myc in lung adenocarcinoma cells. Cancers 15: 3389.
7. Zhang, J., et al. 2023. Single amino acid-based PROTACs trigger degradation of the oncogenic kinase BCR-ABL in chronic myeloid leukemia (CML). J. Biol. Chem. 299: 104994.
8. Luo, Y.W., et al. 2023. Anti-apoptotic effect of adrenomedullin gene delivery on Leydig cells by suppressing TGF-β1 via the Hippo signaling pathway. Reprod. Toxicol. 119: 108418.

RESEARCH USE

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