SANTA CRUZ BIOTECHNOLOGY, INC.

Muscle Actin (HUC1-1): sc-53141

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.

SOURCE

Muscle Actin (HUC1-1) is a mouse monoclonal antibody raised against vascular Muscle Actin of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Muscle Actin (HUC1-1) is available conjugated to agarose (sc-53141 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-53141 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53141 PE), fluorescein (sc-53141 FITC), Alexa Fluor® 488 (sc-53141 AF488), Alexa Fluor® 546 (sc-53141 AF546), Alexa Fluor® 594 (sc-53141 AF594) or Alexa Fluor® 647 (sc-53141 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53141 AF680) or Alexa Fluor® 790 (sc-53141 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

Muscle Actin (HUC1-1) is recommended for detection of all vertebrate and avian Muscle Actins 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); non cross-reactive with cytoplasmic Actins.

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 Muscle Actin: 43 kDa.

Positive Controls: A-673 cell lysate: sc-2414, BC_3H1 cell lysate: sc-2299 or Sol8 cell lysate: sc-2249.

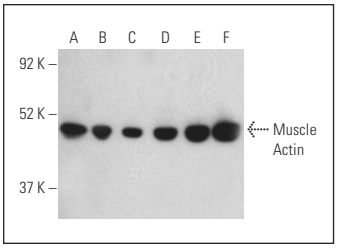
STORAGE

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

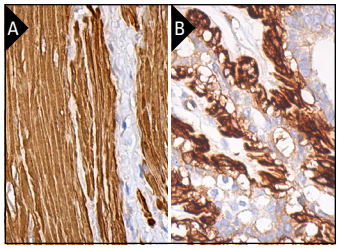
RESEARCH USE

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

DATA



Muscle Actin (HUC1-1): sc-53141. Western blot analysis of Muscle Actin expression in SJRH30 (**A**), A549 (**B**), A-673 (**C**), RD (**D**), Sol8 (**E**) and BC_3H1 (**F**) whole cell lysates. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.



Muscle Actin (HUC1-1): sc-53141. Immunoperoxidase staining of formalin fixed, paraffin-embedded human smooth muscle tissue showing cytoplasmic staining of smooth muscle cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human breast tissue showing cytoplasmic and membrane staining of myoepithelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Gokhin, D.S. and Fowler, V.M. 2011. Cytoplasmic γ-Actin and tropomodulin isoforms link to the sarcoplasmic reticulum in skeletal muscle fibers. J. Cell Biol. 194: 105-120.
2. Ni, Y., et al. 2015. Astaxanthin prevents and reverses diet-induced Insulin resistance and steatohepatitis in mice: a comparison with vitamin E. Sci. Rep. 5: 17192.
3. Cremaschi, P., et al. 2015. Chronic replication problems impact cell morphology and adhesion of DNA ligase I defective cells. PLoS ONE 10: e0130561.
4. Ni, Y., et al. 2015. Prevention and reversal of lipotoxicity-induced hepatic Insulin resistance and steatohepatitis in mice by an antioxidant carotenoid, β-cryptoxanthin. Endocrinology 156: 987-999.
5. Gu, Z., et al. 2018. Design, synthesis, and structure-activity relationships of novel 4,7,12,12a-tetrahydro-5H-thieno[3',2':3,4]pyrido[1,2-b]isoquinoline and 5,8,12,12a-tetrahydro-6H-thieno[2',3':4,5]pyrido[2,1-a]isoquinoline derivatives as cellular activators of adenosine 5'-monophosphate-activated protein kinase (AMPK). Bioorg. Med. Chem. 26: 2017-2027.
6. Cowley, P.M., et al. 2019. Reversal of right ventricular failure by chronic α1A-subtype adrenergic agonist therapy. Am. J. Physiol. Heart Circ. Physiol. 316: H224-H232.
7. Ni, Y., et al. 2020. Lycopene prevents the progression of lipotoxicity-induced nonalcoholic steatohepatitis by decreasing oxidative stress in mice. Free Radic. Biol. Med. 152: 571-582.
8. Berghausen, E.M., et al. 2021. Disrupted PI3K subunit p110α signaling protects against pulmonary hypertension and reverses established disease in rodents. J. Clin. Invest. 131: e136939.

PROTOCOLS

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