

# Smooth Muscle Actin (B4): sc-53142

## 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.  $\alpha$ -Actin expression is limited to various types of muscle, whereas  $\beta$ - and  $\gamma$ -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.

## SOURCE

Smooth Muscle Actin (B4) is a mouse monoclonal antibody raised against gizzard Actin of chicken origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Smooth Muscle Actin (B4) is available conjugated to agarose (sc-53142 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-53142 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53142 PE), fluorescein (sc-53142 FITC), Alexa Fluor® 488 (sc-53142 AF488), Alexa Fluor® 546 (sc-53142 AF546), Alexa Fluor® 594 (sc-53142 AF594) or Alexa Fluor® 647 (sc-53142 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53142 AF680) or Alexa Fluor® 790 (sc-53142 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## APPLICATIONS

Smooth Muscle Actin (B4) is recommended for detection of enteric smooth muscle  $\gamma$ -Actin and, to a lesser extent,  $\alpha$ -smooth muscle,  $\alpha$ -skeletal and  $\alpha$ -cardiac (sarcomeric) isoforms of Actin of mouse, rat, human and chicken origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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.

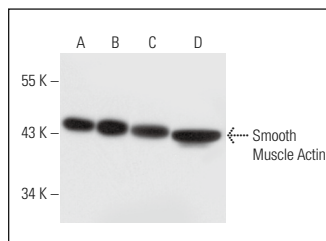
Molecular Weight of Smooth Muscle Actin: 43 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, C32 whole cell lysate: sc-2205 or A-10 cell lysate: sc-3806.

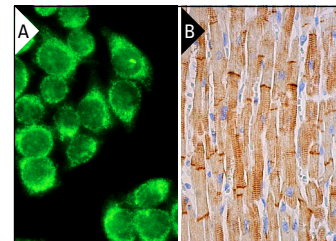
## STORAGE

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

## DATA



Smooth Muscle Actin (B4): sc-53142. Western blot analysis of ACTG1 expression in non-transfected 293T: sc-117752 (A), mouse ACTG1 transfected 293T: sc-124922 (B), HeLa (C) and A-431 (D) whole cell lysates.



Smooth Muscle Actin (B4): sc-53142. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing cytoplasmic and intercalated disc staining of myocytes. Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detection reagents used: m-IgGκ: BP-B: sc-516142 and ImmunoCruz® ABC Kit: sc-516216 (B).

## SELECT PRODUCT CITATIONS

- Ueta, M., et al. 2004. PPAR $\gamma$  ligands attenuate mesangial contractile dysfunction in high glucose. *Kidney Int.* 65: 961-971.
- Zhou, H., et al. 2018. Paeoniflorin inhibits PDGF-BB-induced human airway smooth muscle cell growth and migration. *Mol. Med. Rep.* 17: 2660-2664.
- Li, H., et al. 2019. MicroRNA-320 targeting neuropilin 1 inhibits proliferation and migration of vascular smooth muscle cells and neointimal formation. *Int. J. Med. Sci.* 16: 106-114.
- Wang, X., et al. 2020. Roseotoxin B alleviates cholestatic liver fibrosis through inhibiting PDGF-B/PDGFR- $\beta$  pathway in hepatic stellate cells. *Cell Death Dis.* 11: 458.
- Molinari, C., et al. 2021. Preventing c2c12 muscular cells damage combining magnesium and potassium with vitamin D3 and curcumin. *J. Tradit. Complement. Med.* 11: 532-544.
- Wan, C., et al. 2022. Perfluorooctane sulfonate aggravates CCl4-induced hepatic fibrosis via HMGB1/TLR4/Smad signaling. *Environ. Toxicol.* 37: 983-994.
- Guo, X., et al. 2023. Cod (Gadus) skin collagen peptide powder reduces inflammation, restores mucosal barrier function, and inhibits fibrosis in dextran sodium sulfate-induced colitis in mice. *J. Ethnopharmacol.* 316: 116728.
- Zhang, X.J., et al. 2024. Sacubitril/valsartan ameliorates tubulointerstitial fibrosis by restoring mitochondrial homeostasis in diabetic kidney disease. *Diabetol. Metab. Syndr.* 16: 40.

## RESEARCH USE

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