# SANTA CRUZ BIOTECHNOLOGY, INC.

# MuRF1 (C-11): sc-398608



#### BACKGROUND

Muscle specific RING finger protein (MuRF1) is a sarcomere-associated protein that is upregulated by conditions that provoke atrophy. Pharmacological or genetic inhibition of the IKK $\beta$ /NF $\kappa$ B/MuRF1 pathway reverses muscle atrophy, which presents MuRF as a target for clinical intervention. MuRF1 is a key regulator of the PKC-dependent hypertrophic response and can blunt cardiomyocyte hypertrophy, which may have important implications in the pathophysiology of clinical cardiac hypertrophy. MuRF1 directly associates with Titin kinase and influences microtubule-dependent signaling pathways in striated muscle and iris. MuRF1 upregulation is an indicator for skeletal muscle atrophy mechanisms that utilize ubiquitin-dependent proteolysis. MuRF1 transcript levels are high in situations where there is an overabundance of reactive oxygen species, such as cancer, AIDS and sepsis.

## **CHROMOSOMAL LOCATION**

Genetic locus: TRIM63 (human) mapping to 1p36.11; Trim63 (mouse) mapping to 4 D3.

## SOURCE

MuRF1 (C-11) is a mouse monoclonal antibody raised against amino acids 184-328 mapping near the N-terminus of MuRF1 of human origin.

#### PRODUCT

Each vial contains 200  $\mu g$  IgG\_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MuRF1 (C-11) is available conjugated to agarose (sc-398608 AC), 500  $\mu$ g/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-398608 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-398608 PE), fluorescein (sc-398608 AF546), Alexa Fluor<sup>®</sup> 488 (sc-398608 AF488), Alexa Fluor<sup>®</sup> 546 (sc-398608 AF546), Alexa Fluor<sup>®</sup> 594 (sc-398608 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-398608 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-398608 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-398608 AF790), 200  $\mu$ g/ml, for NB, IF and FCM.

## **APPLICATIONS**

MuRF1 (C-11) is recommended for detection of MuRF1 isoforms 1 and 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffinembedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MuRF1 siRNA (h): sc-43951, MuRF1 siRNA (m): sc-149717, MuRF1 siRNA (r): sc-156173, MuRF1 shRNA Plasmid (h): sc-43951-SH, MuRF1 shRNA Plasmid (m): sc-149717-SH, MuRF1 shRNA Plasmid (r): sc-156173-SH, MuRF1 shRNA (h) Lentiviral Particles: sc-43951-V, MuRF1 shRNA (m) Lentiviral Particles: sc-149717-V and MuRF1 shRNA (r) Lentiviral Particles: sc-156173-V.

Molecular Weight of MuRF1: 40 kDa.

Positive Controls: MuRF1 (h): 293T Lysate: sc-369006.

## STORAGE

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

# DATA





MuRF1 (C-11): sc-398608. Western blot analysis of MuRF1 expression in non-transfected: sc-117752 (A) and human MuRF1 transfected: sc-369006 (B) 293T whole cell lysates and mouse heart (C) and mouse skeletal muscle (D) tissue extracts.

MuRF1 (C-11): sc-398608. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear and faint cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle tissue showing cytoplasmic staining of myocytes (**B**).

## **SELECT PRODUCT CITATIONS**

- Li, J., et al. 2016. Mouse Sirt3 promotes autophagy in AnglI-induced myocardial hypertrophy through the deacetylation of FoxO1. Oncotarget 7: 86648-86659.
- 2. Lu, T., et al. 2017. Role of Nrf2 signaling in the regulation of vascular BK channel  $\beta$ 1 subunit expression and BK channel function in high-fat diet-induced diabetic mice. Diabetes 66: 2681-2690.
- Worton, L.E., et al. 2018. Botulinum toxin A-induced muscle paralysis stimulates Hdac4 and differential miRNA expression. PLoS ONE 13: e0207354.
- Wafi, A.M., et al. 2019. Curcumin improves exercise performance of mice with coronary artery ligation induced HFrEF: Nrf2 and antioxidant mechanisms in skeletal muscle. J. Appl. Physiol. 126: 477-486.
- Yokokawa, T., et al. 2020. Muscle denervation reduces mitochondrial biogenesis and mitochondrial translation factor expression in mice. Biochem. Biophys. Res. Commun. 527: 146-152.
- Cieminski, K., et al. 2021. Swim training affects Akt signaling and ameliorates loss of skeletal muscle mass in a mouse model of amyotrophic lateral sclerosis. Sci. Rep. 11: 20899.
- 7. Yuzawa, R., et al. 2022. VDR regulates simulated microgravity-induced atrophy in C2C12 myotubes. Sci. Rep. 12: 1377.
- Fahrner, A., et al. 2023. microRNA-501 controls myogenin<sup>+</sup>/CD74<sup>+</sup> myogenic progenitor cells during muscle regeneration. Mol. Metab. 71: 101704.
- Zheng, Y., et al. 2023. Endoplasmic reticulum stress promotes sepsisinduced muscle atrophy via activation of STAT3 and Smad3. J. Cell. Physiol. 238: 582-596.

#### **RESEARCH USE**

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

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