SANTA CRUZ BIOTECHNOLOGY, INC.

MuRF1 (D-5): sc-514767

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 IKKβ/NFκB/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.

REFERENCES

1. Centner, T., et al. 2001. Identification of muscle specific ring finger proteins as potential regulators of the titin kinase domain. J. Mol. Biol. 306: 717-726.
2. Bodine, S.C., et al. 2001. Identification of ubiquitin ligases required for skeletal muscle atrophy. Science 294: 1704-1708.
3. Li, Y.P., et al. 2003. Hydrogen peroxide stimulates ubiquitin-conjugating activity and expression of genes for specific E2 and E3 proteins in skeletal muscle myotubes. Am. J. Physiol., Cell Physiol. 285: C806-C812.
4. Glass, D.J. 2003. Signalling pathways that mediate skeletal muscle hypertrophy and atrophy. Nat. Cell Biol. 5: 87-90.
5. Glass, D.J. 2003. Molecular mechanisms modulating muscle mass. Trends Mol. Med. 9: 344-350.
6. Kedar, V., et al. 2004. Muscle-specific RING finger 1 is a bona fide ubiquitin ligase that degrades cardiac troponin I. Proc. Natl. Acad. Sci. USA 101: 18135-18140.

CHROMOSOMAL LOCATION

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

SOURCE

MuRF1 (D-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 294-318 near the C-terminus of MuRF1 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.

Blocking peptide available for competition studies, sc-514767 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

MuRF1 (D-5) is recommended for detection of MuRF1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 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.

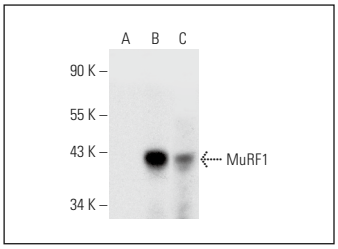
Molecular Weight of MuRF1: 40 kDa.

Positive Controls: MuRF1 (h): 293T Lysate: sc-369006 or human skeletal muscle extract: sc-363776.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



MuRF1 (D-5): sc-514767. Western blot analysis of MuRF1 expression in non-transfected: sc-117752 (**A**) and human MuRF1 transfected: sc-369006 (**B**) 293T whole cell lysates and human skeletal muscle tissue extract (**C**).

SELECT PRODUCT CITATIONS

1. Breuer, T., et al. 2018. Dexmedetomidine impairs diaphragm function and increases oxidative stress but does not aggravate diaphragmatic atrophy in mechanically ventilated rats. Anesthesiology 128: 784-795.

RESEARCH USE

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