

# MuRF3 siRNA (h): sc-61102

## BACKGROUND

MuRF1 (muscle specific ring finger protein 1 or RNF28) is a nuclear protein that interacts with SMT3b and the large myofibrillar protein Titin. In muscle cells, MuRF2 (RNF29) regulates gene expression and protein turnover. It localizes to the cytoplasm, but under atrophic conditions it is detected in the nucleus. MuRF2 can form oligomers with various other proteins, including Titin and Myosin. MuRF3, also designated tripartite motif-containing 54 (TRIM54) or ring finger protein 30 (RNF30), interacts with tubulin and stabilizes microtubules during myotube formation. It is a cytoplasmic protein that localizes to the Z-lines in skeletal muscles, while MuRF2 localizes to the sarcomeric M-band in cardiomyocytes. MuRF3 shares 77% and 65% sequence identity with MuRF1 and MuRF2, respectively. MuRF1-3 share a conserved N-terminal RING domain and zinc-binding B-box motif, and two coiled-coil dimerization motif boxes, in their central regions.

## REFERENCES

1. Spencer, J.A., et al. 2000. Regulation of microtubule dynamics and myogenic differentiation by MURF, a striated muscle RING-finger protein. *J. Cell Biol.* 150: 771-784.
2. 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.
3. Bodine, S.C., et al. 2001. Identification of ubiquitin ligases required for skeletal muscle atrophy. *Science* 294: 1704-1708.
4. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606474. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. 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: C806-812.
6. Glass, D.J. 2003. Signalling pathways that mediate skeletal muscle hypertrophy and atrophy. *Nat. Cell Biol.* 5: 87-90.
7. Sackey, J.M., et al. 2004. IGF-I stimulates muscle growth by suppressing protein breakdown and expression of atrophy-related ubiquitin ligases, atrogen-1 and MuRF1. *Am. J. Physiol. Endocrinol. Metab.* 287: E591-601.

## CHROMOSOMAL LOCATION

Genetic locus: TRIM54 (human) mapping to 2p23.3.

## PRODUCT

MuRF3 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MuRF3 shRNA Plasmid (h): sc-61102-SH and MuRF3 shRNA (h) Lentiviral Particles: sc-61102-V as alternate gene silencing products.

For independent verification of MuRF3 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-61102A, sc-61102B and sc-61102C.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

MuRF3 siRNA (h) is recommended for the inhibition of MuRF3 expression in human cells.

## SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10  $\mu$ M in 66  $\mu$ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

## GENE EXPRESSION MONITORING

MuRF3 (B-2): sc-166137 is recommended as a control antibody for monitoring of MuRF3 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MuRF3 gene expression knockdown using RT-PCR Primer: MuRF3 (h)-PR: sc-61102-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.