SANTA CRUZ BIOTECHNOLOGY, INC.

musculin siRNA (h): sc-38066

BACKGROUND

Differentiation of myogenic cells is regulated by multiple positively and negatively acting factors. One well characterized family of helix-loop-helix (HLH) proteins, known to play an important role in the regulation of muscle cell development, includes MyoD, myogenin and musculin (also designated MyoR). Members of this group of transcription factors form heterodimers with products of a more widely expressed family of bHLH genes, the E family, which consists of at least three distinct genes: E2A, IF2 and HEB. MyoD-E or musculin-E heterodimers bind avidly to consensus E box motifs, which are functionally important elements in the promoter regions of many muscle-specific terminal differentiation genes. MyoD complexes potently induce transcriptional activation, while musculin complexes bind adjacent to MyoD DNA-binding regions to represses MyoD activity, which then results in the delayed expression of muscle-specific genes. musculin is highly expressed in undifferentiated and proliferating myoblasts in culture, and its expression is down-regulated during myogenesis and at the onset of terminal differentiation.

REFERENCES

1. Braun, T., et al. 1996. Myf-5 and MyoD genes are activated in distinct mesenchymal stem cells and determine different skeletal muscle cell lineages. EMBO J. 15: 310-318.
2. Kong, Y., et al. 1997. Muscle LIM protein promotes myogenesis by enhancing the activity of MyoD. Mol. Cell. Biol. 17: 4750-4760.
3. Robb, L., et al. 1998. musculin: a murine basic helix-loop-helix transcription factor gene expressed in embryonic skeletal muscle. Mech. Dev. 76: 197-201.
4. Lu, J., et al. 1999. MyoR: a muscle-restricted basic helix-loop-helix transcription factor that antagonizes the actions of MyoD. Proc. Natl. Acad. Sci. USA 96: 552-557.
5. Robb, L., et al. 1999. Assignment of the human helix-loop-helix transcription factor gene musculin/activated B cell factor-1 (MSC) to chromosome 8q21 and its mouse homologue (Msc) to the proximal region of chromosome 1. Genomics 57: 318-319.
6. Zhang, J.M., et al. 1999. Evolutionary conservation of MyoD function and differential utilization of E proteins. Dev. Biol. 208: 465-472.

CHROMOSOMAL LOCATION

Genetic locus: MSC (human) mapping to 8q13.3.

PRODUCT

musculin 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see musculin shRNA Plasmid (h): sc-38066-SH and musculin shRNA (h) Lentiviral Particles: sc-38066-V as alternate gene silencing products.

For independent verification of musculin (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-38066A, sc-38066B and sc-38066C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

musculin siRNA (h) is recommended for the inhibition of musculin 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 µM in 66 µl. 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

musculin (4D7): sc-293482 is recommended as a control antibody for monitoring of musculin 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-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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor musculin gene expression knockdown using RT-PCR Primer: musculin (h)-PR: sc-38066-PR (20 µl, 446 bp). 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 for detailed protocols and support products.