SANTA CRUZ BIOTECHNOLOGY, INC.

Myf-5 siRNA (m): sc-35989

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 include Myo D, myogenin, Myf-5 and Myf-6 (also designated MRF-4 or herculin). Of interest, most muscle cells express either Myo D or Myf-5 in the committed state, but when induced to differentiate, all turn on expression of myogenin. Myo D 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. Myo D-E heterodimers bind avidly to consensus (CANNTG) E box target sites that are functionally important elements in the upstream regulatory sequences of many muscle-specific terminal differentiation genes.

REFERENCES

1. Braun, T., et al. 1989. A novel human muscle factor related to but distinct from Myo D1 induces myogenic conversion in 10T1/2 fibroblasts. EMBO J. 8: 701-709.
2. Rhodes, S.J., et al. 1989. Identification of MRF4: a new member of the muscle regulatory factor gene family. Genes Dev. 3: 2050-2061.
3. Wright, W.E., et al. 1989. Myogenin, a factor regulating myogenesis, has a domain homologous to Myo D. Cell 56: 607-617.
4. Miner, J.H., et al. 1990. Herculin, a fourth member of the Myo D family of myogenic regulatory genes. Proc. Natl. Acad. Sci. USA 87: 1089-1093.
5. Braun, T., et al. 1990. Myf-6, a new member of the human gene family of myogenic determination factors: evidence for a gene cluster on chromosome 12. EMBO J. 9: 821-831.
6. Thayer, M.J., et al. 1993. A cellular factor stimulates the DNA-binding activity of Myo D and E47. Proc. Natl. Acad. Sci. USA 90: 6483-6487.
7. Hollenberg, S.M., et al. 1993. Use of a conditional Myo D transcription factor in studies of Myo D *trans*-activation and muscle determination. Proc. Natl. Acad. Sci. USA 90: 8028-8032.
8. Neuhold, L.A., et al. 1993. HLH forced dimers: tethering Myo D to E47 generates a dominant positive myogenic factor insulated from negative regulation by Id. Cell 74: 1033-1042.

CHROMOSOMAL LOCATION

Genetic locus: Myf5 (mouse) mapping to 10 D1.

PRODUCT

Myf-5 siRNA (m) 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 Myf-5 shRNA Plasmid (m): sc-35989-SH and Myf-5 shRNA (m) Lentiviral Particles: sc-35989-V as alternate gene silencing products.

For independent verification of Myf-5 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-35989A, sc-35989B and sc-35989C.

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

Myf-5 siRNA (m) is recommended for the inhibition of Myf-5 expression in mouse 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Myf-5 gene expression knockdown using RT-PCR Primer: Myf-5 (m)-PR: sc-35989-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Hewitt, J., et al. 2008. The muscle transcription factor MyoD promotes osteoblast differentiation by stimulation of the Osterix promoter. Endocrinology 149: 3698-3707.
2. Panda, A.C., et al. 2016. Novel RNA-binding activity of MYF5 enhances Ccnd1/cyclin D1 mRNA translation during myogenesis. Nucleic Acids Res. 44: 2393-2408.
3. Zhang, P., et al. 2018. Salidroside inhibits myogenesis by modulating p-Smad3-induced Myf5 transcription. Front. Pharmacol. 9: 209.

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.