SANTA CRUZ BIOTECHNOLOGY, INC.

MDHC siRNA (m): sc-61013

BACKGROUND

Cytosolic malate dehydrogenase (MDHC or cMDH) is an important NAD-dependent enzyme involved in glycometabolism that catalyzes the formation of oxaloacetate and NADH from L-malate and NAD. MDHC is highly expressed in brain, heart and skeletal muscle and plays a role in aerobic energy production for muscle contraction, transmission of neuronal signals, absorption/resorption pathways, collagen-supporting functions, dead cell phagocytosis, as well as pathways involved in gas exchange and cell division. Furthermore, MDHC is a regulatory subunit of the nucleic acid-conducting channel (NACh). MDHC functions as a homodimer and is highly conserved in plants, animals and bacteria. The activity of MDHC is controlled by the sesquiterpenoid juvenile hormone (JH) and the steroid hormone ecdysone.

REFERENCES

1. Drmota, T., et al. 1997. Isolation and characterization of cytosolic malate dehydrogenase from *Trichomonas vaginalis*. Folia Parasitol. 44: 103-108.
2. Farkas, R. and Knopp, J. 1998. Genetic and hormonal control of cytosolic malate dehydrogenase activity in *Drosophila melanogaster*. Gen. Physiol. Biophys. 17: 37-50.
3. Fahien, L.A., et al. 1999. Ability of cytosolic malate dehydrogenase and lactate dehydrogenase to increase the ratio of NADPH to NADH oxidation by cytosolic glycerol-3-phosphate dehydrogenase. Arch. Biochem. Biophys. 364: 185-194.
4. Hanss, B., et al. 2002. Cytosolic malate dehydrogenase confers selectivity of the nucleic acid-conducting channel. Proc. Natl. Acad. Sci. USA 99: 1707-1712.
5. Merrit, T.J.,et al. 2003. Evolution of the vertebrate cytosolic malate dehydrogenase gene family: duplication and divergence in actinopterygian fish. J. Mol. Evol. 56: 265-276.
6. Krzakowa, M. and Matras, J. 2005. Genetic variability among beech *(Fagus sylvatica L.)* populations from the Sudety Mountains, in respect of peroxidase and malate dehydrogenase loci. J. Appl. Genet. 46: 271-277.

CHROMOSOMAL LOCATION

Genetic locus: Mdh1 (mouse) mapping to 11 A3.1.

PRODUCT

MDHC 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 MDHC shRNA Plasmid (m): sc-61013-SH and MDHC shRNA (m) Lentiviral Particles: sc-61013-V as alternate gene silencing products.

For independent verification of MDHC (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-61013A, sc-61013B and sc-61013C.

RESEARCH USE

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

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

MDHC siRNA (m) is recommended for the inhibition of MDHC 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.

GENE EXPRESSION MONITORING

MDHC (H-6): sc-166879 is recommended as a control antibody for monitoring of MDHC 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 MDHC gene expression knockdown using RT-PCR Primer: MDHC (m)-PR: sc-61013-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.