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- Trockeneiszuschlag
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SANTA CRUZ BIOTECHNOLOGY, INC.

ME1 siRNA (m): sc-149342

BACKGROUND

ME1 (malic enzyme 1), also known as NADP-ME, MES or HUMNDME, is a 572 amino acid cytoplasmic protein that belongs to the malic enzyme family. Expressed ubiquitously with highest expression in liver and white adipose tissue, ME1 functions as an NADP-dependent enzyme that catalyzes the conversion of S-malate and NADP to pyruvate, carbon dioxide and NADPH (a reducing agent that participates in fatty acid biosynthesis). Through its ability to catalyze the reversible oxidative decarboxylation of malate, ME1 links the citric acid and glycolytic cycles. ME1 exists as a homotetramer that uses divalent metal cations, such as magnesium or manganese, as cofactors. The expression of ME1 is regulated by both thyroid hormone levels and the amount of carbohydrates in the diet, indicating that ME1 may play an important role as a housekeeping protein within the cell.

REFERENCES

1. Tessarolo, D., et al. 1991. Human malic enzymes in heart and muscle: evidence of a selective distribution. Biochem. Med. Metab. Biol. 45: 1-5.
2. Loeber, G., et al. 1994. Characterization of cytosolic malic enzyme in human tumor cells. FEBS Lett. 344: 181-186.
3. González-Manchón, C., et al. 1995. Cloning, sequencing and functional expression of a cDNA encoding a NADP-dependent malic enzyme from human liver. Gene 159: 255-260.
4. González-Manchón, C., et al. 1997. Molecular cloning and functional characterization of the human cytosolic malic enzyme promoter: thyroid hormone responsiveness. DNA Cell Biol. 16: 533-544.
5. Yang, Z., et al. 2002. Molecular mechanism for the regulation of human mitochondrial NAD(P)$^+$-dependent malic enzyme by ATP and fumarate. Structure 10: 951-960.
6. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 154250. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
7. Hsieh, J.Y., et al. 2006. Determinants of the dual cofactor specificity and substrate cooperativity of the human mitochondrial NAD(P)$^+$-dependent malic enzyme: functional roles of glutamine 362. J. Biol. Chem. 281: 23237-23245.

CHROMOSOMAL LOCATION

Genetic locus: Me1 (mouse) mapping to 9 E3.1.

PRODUCT

ME1 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 ME1 shRNA Plasmid (m): sc-149342-SH and ME1 shRNA (m) Lentiviral Particles: sc-149342-V as alternate gene silencing products.

For independent verification of ME1 (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-149342A, sc-149342B and sc-149342C.

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

ME1 siRNA (m) is recommended for the inhibition of ME1 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

ME1 (99.1): sc-100569 is recommended as a control antibody for monitoring of ME1 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 ME1 gene expression knockdown using RT-PCR Primer: ME1 (m)-PR: sc-149342-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. Liu, L., et al. 2016. Malic enzyme tracers reveal hypoxia-induced switch in adipocyte NADPH pathway usage. Nat. Chem. Biol. 12: 345-352.

RESEARCH USE

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