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SANTA CRUZ BIOTECHNOLOGY, INC.

MsrB2 siRNA (m): sc-149662

BACKGROUND

Methionine is one of the most readily oxidized essential amino acids and an intermediate in the biosynthesis of cysteine, carnitine, taurine, lecithin, phosphatidylcholine and other phospholipids. In its oxidative state, Methionine is regulated *in vivo* by methionine sulfoxide reductases (Msr). MsrB2 (methionine sulfoxide reductase B2), also known as CBS1, MSRB, PILB, CBS-1 or CGI-131, is a 182 amino acid mitochondrial protein that is ubiquitously expressed. Belonging to the MsrB Met sulfoxide reductase family, MsrB2 acts as a catalyst for the reduction of free and protein-bound methionine sulfoxide to methionine. Upon oxidative stress, MsrB2 is suggested to play a role in the preservation of mitochondrial integrity by decreasing the intracellular reactive oxygen species build-up through its scavenging role, hence contributing to cell survival and protein maintenance. MsrB2 utilizes zinc ions, one per subunit, as cofactors.

REFERENCES

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2. Marchetti, M.A., et al. 2005. Methionine sulfoxide reductases B1, B2, and B3 are present in the human lens and confer oxidative stress resistance to lens cells. Invest. Ophthalmol. Vis. Sci. 46: 2107-2112.
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4. Binger, K.J., et al. 2008. Methionine oxidation inhibits assembly and promotes disassembly of apolipoprotein C-II amyloid fibrils. Biochemistry 47: 10208-10217.
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6. Kwak, G.H., et al. 2009. Inhibition of methionine sulfoxide reduction by dimethyl sulfoxide. BMB Rep. 42: 580-585.
7. Binger, K.J., et al. 2010. Methionine-oxidized amyloid fibrils are poor substrates for human methionine sulfoxide reductases A and B2. Biochemistry 49: 2981-2983.
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PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: Msrb2 (mouse) mapping to 2 A3.

PRODUCT

MsrB2 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 MsrB2 shRNA Plasmid (m): sc-149662-SH and MsrB2 shRNA (m) Lentiviral Particles: sc-149662-V as alternate gene silencing products.

For independent verification of MsrB2 (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-149662A, sc-149662B and sc-149662C.

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

MsrB2 siRNA (m) is recommended for the inhibition of MsrB2 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 MsrB2 gene expression knockdown using RT-PCR Primer: MsrB2 (m)-PR: sc-149662-PR (20 µl). 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.