SANTA CRUZ BIOTECHNOLOGY, INC.

Sorbitol Dehydrogenase siRNA (m): sc-76541

BACKGROUND

Sorbitol Dehydrogenase, also known as L-iditol 2-dehydrogenase, SORD or SORD1, is a 357 amino acid member of the zinc-containing alcohol dehydrogenase family. Widely expressed with highest expression in kidney and in the lens of the eye, Sorbitol Dehydrogenase enzymatically catalyzes the zinc-dependent interconversion of polyols, such as such as sorbitol and xylitol, to their respective ketoses. These reactions require NAD^+ as an oxidizing agent and, together with Aldose Reductase, they comprise the sorbitol pathway that is involved in sugar production. Sorbitol Dehydrogenase deficiency leads to defects in this pathway and a subsequent accumulation of sorbitol within the cell; a condition that may be associated with diabetic complications such as cataracts and microvascular problems.

REFERENCES

1. Iwata, T., et al. 1995. Structural organization of the human sorbitol dehydrogenase gene (SORD). Genomics 26: 55-62.
2. Carr, I.M., et al. 1998. Structural and evolutionary characterization of the human sorbitol dehydrogenase gene duplication. Mamm. Genome 9: 1042-1048.
3. Pauly, T.A., et al. 2003. X-ray crystallographic and kinetic studies of human sorbitol dehydrogenase. Structure 11: 1071-1085.
4. Ii, S., et al. 2004. Redox state-dependent and sorbitol accumulation-independent diabetic albuminuria in mice with transgene-derived human aldose reductase and sorbitol dehydrogenase deficiency. Diabetologia 47: 541-548.
5. El-Kabbani, O., et al. 2004. Sorbitol dehydrogenase: structure, function and ligand design. Curr. Med. Chem. 11: 465-476.
6. Schmidt, R.E., et al. 2005. A potent sorbitol dehydrogenase inhibitor exacerbates sympathetic autonomic neuropathy in rats with streptozotocin-induced diabetes. Exp. Neurol. 192: 407-419.
7. Darmanin, C., et al. 2006. Discovery of potential sorbitol dehydrogenase inhibitors from virtual screening. Med. Chem. 2: 239-242.

CHROMOSOMAL LOCATION

Genetic locus: Sord (mouse) mapping to 2 E5.

PRODUCT

Sorbitol Dehydrogenase 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 Sorbitol Dehydrogenase shRNA Plasmid (m): sc-76541-SH and Sorbitol Dehydrogenase shRNA (m) Lentiviral Particles: sc-76541-V as alternate gene silencing products.

For independent verification of Sorbitol Dehydrogenase (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-76541A, sc-76541B and sc-76541C.

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

Sorbitol Dehydrogenase siRNA (m) is recommended for the inhibition of Sorbitol Dehydrogenase 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

Sorbitol Dehydrogenase (E-8): sc-377200 is recommended as a control antibody for monitoring of Sorbitol Dehydrogenase 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 Sorbitol Dehydrogenase gene expression knockdown using RT-PCR Primer: Sorbitol Dehydrogenase (m)-PR: sc-76541-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.

PROTOCOLS

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