SANTA CRUZ BIOTECHNOLOGY, INC.

Transaldolase siRNA (m): sc-72370

BACKGROUND

Proper cell growth, differentiation and survival relies on a series of enzymes involved in complex redox and metabolic pathways. One of these enzymes, Transaldolase, contributes to the generation of NADPH in the nonoxidative phase of the pentose phosphate pathway (PPP) and is important for maintaining metabolite balance. In conjunction with several other enzymes, Transaldolase works to maintain the mitochondrial transmembrane potential by producing both ribose-5-phosphate and NADPH for use in nucleic acid and lipid biosynthesis. The role of Transaldolase in the PPP of spermatoza is of significant importance, as deficiencies in Transaldolase are directly related with male infertility due to loss of sperm structure and function. Mutations in the gene encoding Transaldolase are thought to play a role in multiple sclerosis and are the direct cause of hepatosplenomegaly and telangiectases of the skin.

REFERENCES

1. Banki, K., et al. 1994. Cloning and expression of the human gene for transaldolase. A novel highly repetitive element constitutes an integral part of the coding sequence. J. Biol. Chem. 269: 2847-2851.
2. Thorell, S., et al. 2000. The three-dimensional structure of human Transaldolase. FEBS Lett. 475: 205-208.
3. Verhoeven, N.M., et al. 2001. Transaldolase deficiency: liver cirrhosis associated with a new inborn error in the pentose phosphate pathway. Am. J. Hum. Genet. 68: 1086-1092.
4. Verhoeven, N.M., et al. 2005. A newborn with severe liver failure, cardiomyopathy and transaldolase deficiency. J. Inherit. Metab. Dis. 28: 169-179.
5. Selivanov, V.A., et al. 2005. Rapid simulation and analysis of isotopomer distributions using constraints based on enzyme mechanisms: an example from HT29 cancer cells. Bioinformatics 21: 3558-3564.

CHROMOSOMAL LOCATION

Genetic locus: Taldo1 (mouse) mapping to 7 F5.

PRODUCT

Transaldolase 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 Transaldolase shRNA Plasmid (m): sc-72370-SH and Transaldolase shRNA (m) Lentiviral Particles: sc-72370-V as alternate gene silencing products.

For independent verification of Transaldolase (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-72370A, sc-72370B and sc-72370C.

PROTOCOLS

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

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

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

Transaldolase (H-4): sc-166230 is recommended as a control antibody for monitoring of Transaldolase 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 Transaldolase gene expression knockdown using RT-PCR Primer: Transaldolase (m)-PR: sc-72370-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.