SANTA CRUZ BIOTECHNOLOGY, INC.

Sialyltransferase 7E siRNA (m): sc-72300

BACKGROUND

Sialyltransferase 7E, also known as GD1 α synthase or ST6GalNAc V, is a Golgi type II transmembrane glycosyltransferase predominantly expressed in the brain. It belongs to the ST6GalNAc family of sialyltransferases involved in the biosynthesis of α-series gangliosides. Gangliosides are critical components to a variety of cellular events including cell adhesion, protein targeting, cell-cell interaction and mediation of invasion of vectors. They are glycosphingolipids with sialic acids in the carbohydrate portion. Sialyltransferase 7E is specific for the substrate GM1b, leading to the synthesis of the ganglioside GD1α. In addition, Sialyltransferase 7E can catalyze the synthesis of Disialyl Lc4 from Sialyl Lc4, leading to the synthesis of disialyl Lewis a.

REFERENCES

1. Okajima, T., et al. 1999. Molecular cloning of brain-specific GD1α synthase (ST6GalNAc V) containing CAG/Glutamine repeats. J. Biol. Chem. 274: 30557-30562.
2. Okajima, T., et al. 2000. Molecular cloning and expression of mouse GD1α/GT1aα/GQ1bα synthase (ST6GalNAc VI) gene. J. Biol. Chem. 275: 6717-6723.
3. Ikehara, Y., et al. 2000. A novel glycosyltransferase with a polyglutamine repeat; a new candidate for GD1α synthase (ST6GalNAc V)(1). FEBS Lett. 463: 92-96.
4. Tsuchida, A., et al. 2003. Synthesis of disialyl Lewis a (Le^a) structure in colon cancer cell lines by a sialyltransferase, ST6GalNAc VI, responsible for the synthesis of α-series gangliosides. J. Biol. Chem. 278: 22787-22794.
5. Tsuchida, A., et al. 2005. Molecular cloning and expression of human ST6GalNAc III: restricted tissue distribution and substrate specificity. J. Biochem. 138: 237-243.
6. Harduin-Lepers, A., et al. 2005. The animal sialyltransferases and sialyltransferase-related genes: a phylogenetic approach. Glycobiology 15: 805-817.
7. Yasukawa, Z., et al. 2005. Inflammation-dependent changes in α2,3-, α2,6-, and α2,8-sialic acid glycotopes on serum glycoproteins in mice. Glycobiology 15: 827-837.
8. Patel, R.Y. and Balaji, P.V. 2006. Identification of linkage-specific sequence motifs in sialyltransferases. Glycobiology 16: 108-116.
9. Nakata, D. and Zhang, L. 2006. Molecular basis for polysialylation: a novel polybasic polysialyltransferase domain (PSTD) of 32 amino acids unique to the α2,8-polysialyltransferases is essential for polysialylation. Glycoconj. J. 23: 423-436.

CHROMOSOMAL LOCATION

Genetic locus: St6galnac5 (mouse) mapping to 3 H3.

PROTOCOLS

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

PRODUCT

Sialyltransferase 7E 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 Sialyltransferase 7E shRNA Plasmid (m): sc-72300-SH and Sialyltransferase 7E shRNA (m) Lentiviral Particles: sc-72300-V as alternate gene silencing products.

For independent verification of Sialyltransferase 7E (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-72300A, sc-72300B and sc-72300C.

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

Sialyltransferase 7E siRNA (m) is recommended for the inhibition of Sialyltransferase 7E 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 Sialyltransferase 7E gene expression knockdown using RT-PCR Primer: Sialyltransferase 7E (m)-PR: sc-72300-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.