SANTA CRUZ BIOTECHNOLOGY, INC.

ST8Sia III siRNA (h): sc-76580

BACKGROUND

ST8Sia III (ST8 α-N-acetyl-neuraminide α-2,8-sialyltransferase 3), also known as SIAT8C, is a 380 amino acid single-pass type II membrane protein that localizes to the membrane of the Golgi apparatus. Expressed in fetal liver and fetal and adult brain, the expression of ST8Sia III is tissue-specific and developmentally regulated. ST8Sia III plays an important role in protein modification and glycosylation, and functions to catalyze the transfer of sialic acid through α-2,8-linkage to intact fetuin glycoprotein. ST8Sia III can form polysialic acid (PSA) *in vitro* directly on α-2,3-, α-2,6- or α-2,8-linked sialic acid. PSA is an important regulator of neuronal plasticity and is present in embryonic brain tissue, where it interacts with NCAM (neural cell adhesion molecule) and plays a crucial role in fetal brain development. The gene encoding ST8Sia III maps to human chromosome 18q21.31.

REFERENCES

1. Zeng, G., et al. 1997. Cloning of the cDNA coding for rat brain CMP-NeuAc:GD3 α 2-8 sialyltransferase. Gene 187: 131-134.
2. Lee, Y.C., et al. 1998. Cloning and expression of cDNA for a human Sia α 2,3Gal β 1, 4GlcNA:α 2,8-sialyltransferase (hST8Sia III). Arch. Biochem. Biophys. 360: 41-46.
3. Angata, K., et al. 2000. Differential biosynthesis of polysialic acid on neural cell adhesion molecule (NCAM) and oligosaccharide acceptors by three distinct α 2,8-sialyltransferases, ST8Sia IV (PST), ST8Sia II (STX), and ST8Sia III. J. Biol. Chem. 275: 18594-18601.
4. Angata, K. and Fukuda, M. 2003. Polysialyltransferases: major players in polysialic acid synthesis on the neural cell adhesion molecule. Biochimie 85: 195-206.
5. Online Mendelian Inheritance in Man, OMIM™. 2005. Johns Hopkins University, Baltimore, MD. MIM Number: 609478. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Bork, K., et al. 2007. Experimental approaches to interfere with the polysialylation of the neural cell adhesion molecule *in vitro* and *in vivo*. J. Neurochem. 103: 65-71.

CHROMOSOMAL LOCATION

Genetic locus: ST8SIA3 (human) mapping to 18q21.31.

PRODUCT

ST8Sia III siRNA (h) 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 ST8Sia III shRNA Plasmid (h): sc-76580-SH and ST8Sia III shRNA (h) Lentiviral Particles: sc-76580-V as alternate gene silencing products.

For independent verification of ST8Sia III (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-76580A, sc-76580B and sc-76580C.

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

ST8Sia III siRNA (h) is recommended for the inhibition of ST8Sia III expression in human 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 ST8Sia III gene expression knockdown using RT-PCR Primer: ST8Sia III (h)-PR: sc-76580-PR (20 µl, 500 bp). 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.