SANTA CRUZ BIOTECHNOLOGY, INC.

Sialyltransferase 7A siRNA (h): sc-63014

BACKGROUND

Sialyltransferase 7A, also known as ST6GALNAC1 (ST6 (α-N-acetyl-neuraminyl-2,3-β-galactosyl-1,3)-N-acetylgalactosaminide α-2,6-sialyltransferase 1), SIAT7A or STYI, is a 600 amino acid single-pass type II membrane protein that localizes to the golgi and belongs to the glycosyltransferase 29 family. Involved in the process of protein modification, Sialyltransferase 7A functions to transfer a sialic acid, specifically N-acetylneuraminic acid (NeuAc), to O-linked GalNAc residues and, via its catalytic activity, plays a role in tumor development and metastasis. The gene encoding Sialyltransferase 7A maps to human chromosome 17, which comprises over 2.5% of the human genome and encodes over 1,200 genes. Two key tumor suppressor genes are associated with chromosome 17, namely, p53 and BRCA1. Tumor suppressor p53 is necessary for maintenance of cellular genetic integrity by moderating cell fate through DNA repair versus cell death. Malfunction or loss of p53 expression is associated with malignant cell growth and Li-Fraumeni syndrome. Like p53, BRCA1 is directly involved in DNA repair, though specifically it is recognized as a genetic determinant of early onset breast cancer and predisposition to cancers of the ovary, colon, prostate gland and fallopian tubes.

REFERENCES

1. Ikehara, Y., et al. 1999. Cloning and expression of a human gene encoding an N-acetylgalactosamine-α2,6-sialyltransferase (ST6GalNAc I): a candidate for synthesis of cancer-associated sialyl-Tn antigens. Glycobiology 9: 1213-1224.
2. Lee, Y.C., et al. 1999. Molecular cloning and functional expression of two members of mouse NeuAcα2,3Galβ1,3GalNAc GalNAcα2,6-sialyltransferase family, ST6GalNAc III and IV. J. Biol. Chem. 274: 11958-11967.
3. Julien, S., et al. 2001. Expression of sialyl-Tn antigen in breast cancer cells transfected with the human CMP-Neu5Ac: GalNAc α2,6-sialyltransferase (ST6GalNac I) cDNA. Glycoconj. J. 18: 883-893.
4. Donadio, S., et al. 2003. Recognition of cell surface acceptors by two human α-2,6-sialyltransferases produced in CHO cells. Biochimie 85: 311-321.

CHROMOSOMAL LOCATION

Genetic locus: ST6GALNAC1 (human) mapping to 17q25.1.

PRODUCT

Sialyltransferase 7A 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 Sialyltransferase 7A shRNA Plasmid (h): sc-63014-SH and Sialyltransferase 7A shRNA (h) Lentiviral Particles: sc-63014-V as alternate gene silencing products.

For independent verification of Sialyltransferase 7A (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-63014A, sc-63014B and sc-63014C.

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 7A siRNA (h) is recommended for the inhibition of Sialyltransferase 7A 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 Sialyltransferase 7A gene expression knockdown using RT-PCR Primer: Sialyltransferase 7A (h)-PR: sc-63014-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.