SANTA CRUZ BIOTECHNOLOGY, INC.

FucT-I siRNA (h): sc-97630

BACKGROUND

All human blood, with rare exception, carries the red cell H antigen. The H blood group locus determines expression of the H antigen in the erythroid lineage, whereas a unique locus (the SE (secretion) locus) controls H expression in a variety of secretory epithelia and in saliva. Individuals of the Bombay phenotype lack H antigen, whereas individuals of the para-Bombay phenotype synthesize H determinants (essential precursors to A and B antigens) in their secretory epithelia but not in the erythroid lineage. The H and SE loci, which may have arisen by gene duplication from a common ancestral gene, are known as FucT-I and FUT2, respectively, and are tightly linked on chromosome 19q13.3. Studies of mice deficient in FucT-I indicate that α(1,2)-fucosylated glycans play nonessential roles in blastocyst implantation or sperm function in mice.

REFERENCES

1. Kelly, R.J., et al. 1994. Molecular basis for H blood group deficiency in Bombay (Oh) and para-Bombay individuals. Proc. Natl. Acad. Sci. USA 91: 5843-5847.
3. Koda, Y., et al. 1997. Mis-sense mutation of FUT1 and deletion of FUT2 are responsible for Indian Bombay phenotype of ABO blood group system. Biochem. Biophys. Res. Commun. 238: 21-25.
4. Wang, B., et al. 1997. Two missense mutations of H type α(1,2)fucosyltransferase gene (FUT1) responsible for para-Bombay phenotype. Vox Sang. 72: 31-35.
5. Saunier, K., et al. 2001. Organization of the bovine α 2-fucosyltransferase gene cluster suggests that the Sec1 gene might have been shaped through a nonautonomous L1-retrotransposition event within the same locus. Mol. Biol. Evol. 18: 2083-2091.
6. Domino, S.E., et al. 2001. Molecular cloning, genomic mapping, and expression of two secretor blood group α(1,2)fucosyltransferase genes differentially regulated in mouse uterine epithelium and gastrointestinal tract. J. Biol. Chem. 276: 23748-23756.
7. Domino, S.E., et al. 2001. Deficiency of reproductive tract α(1,2)fucosylated glycans and normal fertility in mice with targeted deletions of the FUT1 or FUT2 α(1,2)fucosyltransferase locus. Mol. Cell. Biol. 21: 8336-8345.

CHROMOSOMAL LOCATION

Genetic locus: FUT1 (human) mapping to 19q13.33.

PRODUCT

FucT-I 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 FucT-I shRNA Plasmid (h): sc-97630-SH and FucT-I shRNA (h) Lentiviral Particles: sc-97630-V as alternate gene silencing products.

For independent verification of FucT-I (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-97630A, sc-97630B and sc-97630C.

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

FucT-I siRNA (h) is recommended for the inhibition of FucT-I 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.

GENE EXPRESSION MONITORING

FucT-I (97-I): sc-52398 is recommended as a control antibody for monitoring of FucT-I 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor FucT-I gene expression knockdown using RT-PCR Primer: FucT-I (h)-PR: sc-97630-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Isozaki, T., et al. 2014. Fucosyltransferase 1 mediates angiogenesis, cell adhesion and rheumatoid arthritis synovial tissue fibroblast proliferation. Arthritis Res. Ther. 16: R28.

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.