SANTA CRUZ BIOTECHNOLOGY, INC.

FucT-III siRNA (h): sc-40584

BACKGROUND

Fucosyltransferases (FucTs) catalyze the covalent association of fucose to different positional linkages on sugar acceptor molecules. The carbohydrate moieties that are generated are covalently attached to cell surfaces and are necessary to ensure a surface contour that satisfies a variety of physiological roles. FucT-III (fucosyltransferase 3), also known as FUT3, FT3B or LE, is a 361 amino acid single-pass type II membrane protein that localizes to the Golgi stack and belongs to the glycosyltransferase 10 family. Expressed at high levels in colon, stomach, kidney, lung and small intestine and present at lower levels in liver, bladder, uterus and salivary gland, FucT-III functions to catalyze for formation of α-1,3 and α-1,4 glycosidic linkages and may be involved in Lewis blood group determination. FucT-III may be involved in the pathogenesis of breast and colon carcinoma.

REFERENCES

1. Weston, B.W., et al. 1992. Isolation of a novel human α (1,3)fucosyltransferase gene and molecular comparison to the human Lewis blood group α (1,3/1,4)fucosyltransferase gene. Syntenic, homologous, nonallelic genes encoding enzymes with distinct acceptor substrate specificities. J. Biol. Chem. 267: 4152-4160.
2. Mollicone, R., et al. 1994. Molecular basis for Lewis α(1,3/1,4)-fucosyltransferase gene deficiency (FUT3) found in Lewis-negative Indonesian pedigrees. J. Biol. Chem. 269: 20987-20994.
3. Nishihara, S., et al. 1994. Molecular genetic analysis of the human Lewis histo-blood group system. J. Biol. Chem. 269: 29271-29278.
4. Orntoft, T.F., et al. 1996. Influence of Lewis α1-3/4-L-fucosyltransferase (FUT3) gene mutations on enzyme activity, erythrocyte phenotyping, and circulating tumor marker sialyl-Lewis a levels. J. Biol. Chem. 271: 32260-32268.
5. Holmes, E.H., et al. 2000. Human α 1,3/4 fucosyltransferases. Characterization of highly conserved cysteine residues and N-linked glycosylation sites. J. Biol. Chem. 275: 24237-24245.
6. Dabrowska, A., et al. 2005. Promoter analysis of the human α1,3/4-fucosyltransferase gene (FUT III). Biochim. Biophys. Acta 1731: 66-73.
7. Djoussé, L., et al. 2007. Fucosyltransferase 3 polymorphism and atherothrombotic disease in the Framingham Offspring Study. Am. Heart J. 153: 636-639.
8. Silander, K., et al. 2008. Gender differences in genetic risk profiles for cardiovascular disease. PLoS ONE 3: e3615.
9. Online Mendelian Inheritance in Man, OMIM™. 2009. Johns Hopkins University, Baltimore, MD. MIM Number: 111100. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: FUT3 (human) mapping to 19p13.3.

PROTOCOLS

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

PRODUCT

FucT-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 FucT-III shRNA Plasmid (h): sc-40584-SH and FucT-III shRNA (h) Lentiviral Particles: sc-40584-V as alternate gene silencing products.

For independent verification of FucT-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-40584A, sc-40584B and sc-40584C.

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-III siRNA (h) is recommended for the inhibition of FucT-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 FucT-III gene expression knockdown using RT-PCR Primer: FucT-III (h)-PR: sc-40584-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.