SANTA CRUZ BIOTECHNOLOGY, INC.

FUT2 siRNA (h): sc-40593

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 FUT1 and FUT2, respectively, and are tightly linked on chromosome 19q13.3. FUT1 and FUT2 encode two distinct α-2-L-fucosyltransferases in human serum. The FUT2 locus (SE or ABO-secretor locus) exhibits extensive polymorphism showing high heterogeneity and overt ethnic specificity. For this reason, mutations or polymorphisms of the FUT2 gene are used as markers for investigating population genetics. FUT2 is expressed on the surface of several human tumor cell lines such as BEL-7404, SPC-A-1 and SGC-7901.

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.
2. Koda, Y., et al. 1997. Missense 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.
3. 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.
4. Xing, L. and Guo, L.H. 2000. FUT2 gene involved in expression of H blood group antigen on surface of human tumor cell lines BEL-7404, SGC-7901, and SPC-A-1. Acta Pharmacol. Sin. 21: 997-1001.
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.

CHROMOSOMAL LOCATION

Genetic locus: FUT2 (human) mapping to 19q13.33.

PRODUCT

FUT2 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 FUT2 shRNA Plasmid (h): sc-40593-SH and FUT2 shRNA (h) Lentiviral Particles: sc-40593-V as alternate gene silencing products.

For independent verification of FUT2 (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-40593A, sc-40593B and sc-40593C.

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

FUT2 siRNA (h) is recommended for the inhibition of FUT2 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

FUT2 (9T-8): sc-100742 is recommended as a control antibody for monitoring of FUT2 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor FUT2 gene expression knockdown using RT-PCR Primer: FUT2 (h)-PR: sc-40593-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.