SANTA CRUZ BIOTECHNOLOGY, INC.

GnT-IVA siRNA (h): sc-94905

BACKGROUND

GnT-IVA (N-acetylglucosaminyltransferase IVA), also known as GlcNAc-T IVa, GnT-IV or MGAT4A (mannosyl (α-1,3-)-glycoprotein β-1,4-N-acetylglucosa-minyltransferase, isozyme A) is a type II single-pass membrane protein that belongs to the glycosyltransferase 54 family of proteins. Localizing to the membrane of the Golgi apparatus, GnT-IVA is expressed in thymus, pancreas, prostate, small intestine, lymph node, spleen and peripheral blood leukocytes. It functions as a glycosyltransferase and participates in protein modification by catalyzing the transfer of N-acetylglucosamine (GlcNAc) to mannose residues of N-linked glycans, thereby regulating the formation of tri- and multi-antennary structures. GnT-IVA may be involved in regulating cell differentiation, oncogenesis and the availability of serum glycoproteins and is known to play a role in the development of choriocarcinoma. In addition, GnT-IVA is recognized as a genetic marker for pancreatic cancer as its expression is downregulated in these cancer tissues.

REFERENCES

1. Takamatsu, S., et al. 1999. Unusually high expression of N-acetylglucosaminyltransferase-IVA in human choriocarcinoma cell lines: a possible enzymatic basis of the formation of abnormal biantennary sugar chain. Cancer Res. 59: 3949-3953.
2. Fukuta, K., et al. 2001. The widespread effect of β 1,4-galactosyltransferase on N-glycan processing. Arch. Biochem. Biophys. 392: 79-86.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604623. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Ohtsubo, K., et al. 2005. Dietary and genetic control of glucose transporter 2 glycosylation promotes Insulin secretion in suppressing diabetes. Cell 123: 1307-1321.
5. Oguri, S., et al. 2006. Kinetic properties and substrate specificities of two recombinant human N-acetylglucosaminyltransferase-IV isozymes. Glycoconj. J. 23: 473-480.
6. Thorens, B. 2006. A toggle for type 2 diabetes? N. Engl. J. Med. 354: 1636-1638.

CHROMOSOMAL LOCATION

Genetic locus: MGAT4A (human) mapping to 2q11.2.

PRODUCT

GnT-IVA 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 GnT-IVA shRNA Plasmid (h): sc-94905-SH and GnT-IVA shRNA (h) Lentiviral Particles: sc-94905-V as alternate gene silencing products.

For independent verification of GnT-IVA (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-94905A, sc-94905B and sc-94905C.

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

GnT-IVA siRNA (h) is recommended for the inhibition of GnT-IVA 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

GnT-IVA (M-71): sc-100785 is recommended as a control antibody for monitoring of GnT-IVA 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 GnT-IVA gene expression knockdown using RT-PCR Primer: GnT-IVA (h)-PR: sc-94905-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.