SANTA CRUZ BIOTECHNOLOGY, INC.

GnT-V siRNA (h): sc-40642

BACKGROUND

UDP-N-acetylglucosamine: α mannoside β1, 6 N-acetylglucosaminyltransferase, known as GnT-V, plays a pivotal role in the processing of N-linked glycoproteins and influences cancer progression and metastasis. Expression of GnT-V in the liver is enhanced during hepatocarcinogenesis, although it is not expressed in normal liver. Gene expression of GnT-V is regulated by a transcriptional factor, which is involved in angiogenesis and invasion of tumor cells. When the formation of the product of GnT-V, GlcNAc-β1-6, is inhibited by overexpression of GnT-III, lung metastasis of melanoma cells is suppressed. Modification of glycoprotein receptors such as the receptors for epidermal growth factor and nerve growth factor by GnT-III sense transfection changes an intracellular signaling pathway, which may lead to a variety of biological alterations in tumor cells.

REFERENCES

1. Taniguchi, N., et al. 1999. Implication of N-acetylglucosaminyltransferases III and V in cancer: gene regulation and signaling mechanism. Biochim. Biophys. Acta 1455: 287-300.
2. Ito, Y., et al. 2001. Elevated expression of UDP-N-acetylglucosamine: alphamannoside β1,6 N-acetylglucosaminyltransferase is an early event in hepatocarcinogenesis. Int. J. Cancer 91: 631-637.
3. Guo, H.B., et al. 2001. Relationship between metastasis-associated phenotypes and N-glycan structure of surface glycoproteins in human hepatocarcinoma cells. J. Cancer Res. Clin. Oncol. 127: 231-236.
4. Fukuzumi, M., et al. 2001. Comparison of the expression of cell surface poly-N-acetyllactosamine-type oligosaccharides in PC-12 cells with those in its variant PC12D. Glycobiology 11: 481-494.

CHROMOSOMAL LOCATION

Genetic locus: MGAT5 (human) mapping to 2q21.2.

PRODUCT

GnT-V 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-V shRNA Plasmid (h): sc-40642-SH and GnT-V shRNA (h) Lentiviral Particles: sc-40642-V as alternate gene silencing products.

For independent verification of GnT-V (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-40642A, sc-40642B and sc-40642C.

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-V siRNA (h) is recommended for the inhibition of GnT-V 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-V (3E9): sc-293276 is recommended as a control antibody for monitoring of GnT-V 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-V gene expression knockdown using RT-PCR Primer: GnT-V (h)-PR: sc-40642-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. Ma, H., et al. 2013. Functional roles of glycogene and N-glycan in multidrug resistance of human breast cancer cells. IUBMB Life 65: 409-422.
2. Guo, R., et al. 2013. Glycogenes mediate the invasive properties and chemosensitivity of human hepatocarcinoma cells. Int. J. Biochem. Cell Biol. 45: 347-358.
3. Kubyshkin, A.V., et al. 2018. Tht impact of alcohol on pro-metastatic glycosylation in prostate cancer. Krim. Z. Eksp. Klin. Med. 8: 11-20.

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.