SANTA CRUZ BIOTECHNOLOGY, INC.

GalNAc-T1 siRNA (m): sc-75083

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The Power to Question

BACKGROUND

The UDP-N-acetyl-α-D-galactosamine:polypeptide N-acetylgalactosaminyl-transferase (GalNAc-T) family of enzymes are substrate-specific proteins that catalyze the transfer of GalNAc (N-acetylgalactosamine) to serine and threonine residues onto various proteins, thereby initiating mucin-type O-linked glycosylation in the Golgi apparatus. GalNAc-T1, also known as GALNT1 (polypeptide N-acetylgalactosaminyltransferase 1), is a ubiquitously expressed 559 amino acid single-pass type II membrane protein that localizes to the Golgi apparatus and, like other GalNAc-Ts, contains a stem region and a C-terminal ricin/lectin-like domain. GalNAc-T1 catalyzes the first reaction in O-linked oligosaccharide biosynthesis, namely the transfer of an N-acetyl-D-galactosamine residue to a protein acceptor. GalNAc-T1 uses calcium and manganese as cofactors. Due to alternative splicing events, two GalNAc-T1 isoforms are expressed.

REFERENCES

1. White, T., et al. 1995. Purification and cDNA cloning of a human UDP-N-acetyl-α-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase. J. Biol. Chem. 270: 24156-24165.
2. Takai, S., et al. 1997. A human UDP-GalNAc: polypeptide, N-acetylgalactosaminyltransferase type 1 gene is located at the chromosomal region 18q12.1. Hum. Genet. 99: 293-294.
3. Bennett, E.P., et al. 1998. Genomic organization and chromosomal localization of three members of the UDP-N-acetylgalactosamine: polypeptide N-acetylgalactosaminyltransferase family. Glycobiology 8: 547-555.
4. Tenno, M., et al. 2002. Function of the lectin domain of polypeptide N-acetylgalactosaminyltransferase 1. Biochem. Biophys. Res. Commun. 298: 755-759.
5. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 602273. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Qiu, H., et al. 2006. Expressions of polypeptide: N-acetylgalactosaminyl-transferase in leukemia cell lines during 1,25-dihydroxyvitamin D_3 induced differentiation. Glycoconj. J. 23: 575-584.

CHROMOSOMAL LOCATION

Genetic locus: Galnt1 (mouse) mapping to 18 A2.

PRODUCT

GalNAc-T1 siRNA (m) 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 GalNAc-T1 shRNA Plasmid (m): sc-75083-SH and GalNAc-T1 shRNA (m) Lentiviral Particles: sc-75083-V as alternate gene silencing products.

For independent verification of GalNAc-T1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-75083A, sc-75083B and sc-75083C.

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

GalNAc-T1 siRNA (m) is recommended for the inhibition of GalNAc-T1 expression in mouse 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 GalNAc-T1 gene expression knockdown using RT-PCR Primer: GalNAc-T1 (m)-PR: sc-75083-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. Li, C., et al. 2016. GALNT1-mediated glycosylation and activation of Sonic hedgehog signaling maintains the self-renewal and tumor-initiating capacity of bladder cancer stem cells. Cancer Res. 76: 1273-1283.

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.