SANTA CRUZ BIOTECHNOLOGY, INC.

FPGT siRNA (m): sc-75056

BACKGROUND

Guanylyltransferase enzymes transfer one molecule of GTP to another molecule and also function in the transfer of guanosine nucleotides to sugar 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. L-fucose is an important sugar in complex carbohydrates that is frequently found on plant and mammalian N-linked glycans. FPGT (fucose-1-phosphate guanylyltransferase), also known as GFPP (GDP-L-fucose pyrophosphorylase), is a 594 amino acid cytoplasmic protein that catalyzes the formation of GDP-L-fucose from L-fucose-1-phosphate and GTP. FPGT functions to reutilize the L-fucose that is produced uopn glycoprotein and glycolipid turnover.

REFERENCES

1. Pastuszak, I., et al. 1998. GDP-L-fucose pyrophosphorylase. Purification, cDNA cloning, and properties of the enzyme. J. Biol. Chem. 273: 30165-30174.
2. Online Mendelian Inheritance in Man, OMIM™. 1999. Johns Hopkins University, Baltimore, MD. MIM Number: 603609. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Quirk, S. and Seley, K.L. 2005. Identification of catalytic amino acids in the human GTP fucose pyrophosphorylase active site. Biochemistry 44: 13172-13178.
4. Niittymäki, J., et al. 2006. Differential gene expression of GDP-L-fucose-synthesizing enzymes, GDP-fucose transporter and fucosyltransferase VII. APMIS 114: 539-548.
5. Quirk, S. and Seley-Radtke, K.L. 2006. Purification, crystallization and preliminary X-ray characterization of the human GTP fucose pyrophosphorylase. Acta Crystallogr. Sect. F Struct. Biol. Cryst. Commun. 62: 392-394.
6. Kotake, T., et al. 2008. A bifunctional enzyme with L-fucokinase and GDP-L-fucose pyrophosphorylase activities salvages free L-fucose in *Arabidopsis*. J. Biol. Chem. 283: 8125-8135.
7. Wang, W., et al. 2009. Chemoenzymatic synthesis of GDP-L-fucose and the Lewis X glycan derivatives. Proc. Natl. Acad. Sci. USA 106: 16096-16101.

CHROMOSOMAL LOCATION

Genetic locus: Fpgt (mouse) mapping to 3 H4.

PRODUCT

FPGT 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 FPGT shRNA Plasmid (m): sc-75056-SH and FPGT shRNA (m) Lentiviral Particles: sc-75056-V as alternate gene silencing products.

For independent verification of FPGT (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-75056A, sc-75056B and sc-75056C.

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

FPGT siRNA (m) is recommended for the inhibition of FPGT 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 FPGT gene expression knockdown using RT-PCR Primer: FPGT (m)-PR: sc-75056-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.