SANTA CRUZ BIOTECHNOLOGY, INC.

G6Pase-β siRNA (h): sc-93702

BACKGROUND

Glucose-6-phosphatase (G6Pase), is a multicomponent enzyme system that hydrolyzes glucose-6-phosphate (G6P) in the final step of gluconeogenesis and gluconeolysis. G6Pase localizes to the endoplasmic reticulum, and while liver, kidney, and intestine are the only tissues that express the first identified isoform, G6Pase-α, a second form, designated G6Pase-β, contributes to blood glucose homeostasis in a wider range of tissues. G6Pase-β, also known as SCN4, UGRP or G6PC3 (glucose 6 phosphatase, catalytic, 3), is a 346 amino acid endoplasmic reticulum multi-pass membrane protein that is involved in carbohydrate biosynthesis and the gluconeogenesis pathway. Inhibited by vanadate, G6Pase-β hydrolyzes GP6 to glucose in the endoplasmic reticulum. Due to its necessary involvement in normal glucose metabolism, G6Pase-β may play an integral role in diabetes and glycogen storage diseases (GSDs).

REFERENCES

1. Martin, C.C., et al. 2002. Identification and characterization of a human cDNA and gene encoding a ubiquitously expressed glucose-6-phosphatase catalytic subunit-related protein. J. Mol. Endocrinol. 29: 205-222.
2. Guionie, O., et al. 2003. Identification and characterisation of a new human glucose-6-phosphatase isoform. FEBS Lett. 551: 159-164.
3. Thiel, G., et al. 2005. cAMP response element binding protein (CREB) activates transcription via two distinct genetic elements of the human glucose-6-phosphatase gene. BMC Mol. Biol. 6: 2.
4. Goh, B.H., et al. 2006. Expression of glucose-6-phosphatase system genes in murine cortex and hypothalamus. Horm. Metab. Res. 38: 1-7.
5. Wang, Y., et al. 2006. Deletion of the gene encoding the ubiquitously expressed glucose-6-phosphatase catalytic subunit-related protein (UGRP)/glucose-6-phosphatase catalytic subunit-β results in lowered plasma cholesterol and elevated glucagon. J. Biol. Chem. 281: 39982-39989.
6. Cheung, Y.Y., et al. 2007. Impaired neutrophil activity and increased susceptibility to bacterial infection in mice lacking glucose-6-phosphatase-β. J. Clin. Invest. 117: 784-793.

CHROMOSOMAL LOCATION

Genetic locus: G6PC3 (human) mapping to 17q21.31.

PRODUCT

G6Pase-β 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 G6Pase-β shRNA Plasmid (h): sc-93702-SH and G6Pase-β shRNA (h) Lentiviral Particles: sc-93702-V as alternate gene silencing products.

For independent verification of G6Pase-β (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-93702A, sc-93702B and sc-93702C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

G6Pase-β siRNA (h) is recommended for the inhibition of G6Pase-β 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor G6Pase-β gene expression knockdown using RT-PCR Primer: G6Pase-β (h)-PR: sc-93702-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.