SANTA CRUZ BIOTECHNOLOGY, INC.

G6PT siRNA (m): sc-145296

BACKGROUND

G6PT (glucose-6-phosphate translocase), also known as G6PT1, G6PT2, G6PT3, GSD1b, GSD1c, GSD1d, TRG19 or SLC37A4 (solute carrier family 37, member 4), is a 429 amino acid endoplasmic reticulum multi-pass membrane protein belonging to the SLC37A family (also known as SLC37A sugar transporter family) of the major facilitator superfamily. Highly expressed in liver and kidney, G6PT is involved in the transport of glucose-6-phosphate (G6P) from the cytoplasm to the lumen of the endoplasmic reticulum. G6PT plays a critical role in glycogenolysis and gluconeogenesis, which are metabolic pathways involved in the regulation of blood glucose levels. G6PT also plays a role in ATP-mediated calcium sequestration in the lumen of the endoplasmic reticulum. Mutation in the gene encoding G6PT causes glycogen storage disease type 1B (GSD1B), a disorder characterized by impairment of terminal steps of glycogenolysis and gluconeogenesis.

REFERENCES

1. Gerin, I., et al. 1997. Sequence of a putative glucose 6-phosphate translocase, mutated in glycogen storage disease type Ib. FEBS Lett. 419: 235-238.
2. Veiga-da-Cunha, M., et al. 1998. A gene on chromosome 11q23 coding for a putative glucose- 6-phosphate translocase is mutated in glycogen-storage disease types Ib and Ic. Am. J. Hum. Genet. 63: 976-983.
3. Ihara, K., et al. 1998. Genomic structure of the human glucose 6-phosphate translocase gene and novel mutations in the gene of a Japanese patient with glycogen storage disease type Ib. Hum. Genet. 103: 493-496.
4. Galli, L., et al. 1999. Mutations in the glucose-6-phosphate transporter (G6PT) gene in patients with glycogen storage diseases type 1b and 1c. FEBS Lett. 459: 255-258.
5. Hiraiwa, H., et al. 1999. Inactivation of the glucose 6-phosphate transporter causes glycogen storage disease type Ib. J. Biol. Chem. 274: 5532-5536.
6. Csala, M., et al. 2007. Transport and transporters in the endoplasmic reticulum. Biochim. Biophys. Acta 1768: 1325-1341.

CHROMOSOMAL LOCATION

Genetic locus: Slc37a4 (mouse) mapping to 9 A5.2.

PRODUCT

G6PT 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 G6PT shRNA Plasmid (m): sc-145296-SH and G6PT shRNA (m) Lentiviral Particles: sc-145296-V as alternate gene silencing products.

For independent verification of G6PT (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-145296A, sc-145296B and sc-145296C.

PROTOCOLS

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

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

G6PT siRNA (m) is recommended for the inhibition of G6PT 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 G6PT gene expression knockdown using RT-PCR Primer: G6PT (m)-PR: sc-145296-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.