SANTA CRUZ BIOTECHNOLOGY, INC.

PGM 1 siRNA (m): sc-61333

BACKGROUND

Phosphoglucomutase, which belongs to the phophohexose mutase family, plays a role in glycogen catabolism (glycogenolysis) as well as in the process of glycogen synthesis (glycogenesis). During glycogenolysis, PGM converts glucose-1-phosphate to glucose-6-phosphate, thus promoting glycolysis and the pentose phosphate pathway. During glycogenesis, PGM functions in the opposite manner, converting glucose-6-phosphate into glucose-1-phosphate, to facilitate glycogen synthesis. PGM has three structural loci: PGM1, PGM2 and PGM3. These three genetic forms of PGM differ in amino acid sequences but catalyze the same reactions, therefore indicating that they are isozymes. PGM1, a 562 amino acid protein, is highly polymorphic; three mutations and four intragenic recombination events between the three mutation sites generate eight protein variants. All phosphoglucomutases act as monomers and bind one magnesium ion per subunit.

REFERENCES

1. Takahashi, N., et al. 1982. A phylogeny for the principal alleles of the human phosphoglucomutase-1 locus. Proc. Natl. Acad. Sci. USA 79: 6636-6640.
2. Takahashi, N. and Neel, J.V. 1993. Intragenic recombination at the human phosphoglucomutase 1 locus: predictions fulfilled. Proc. Natl. Acad. Sci. USA 90: 10725-10729.
3. Yip, S.P., et al. 1999. Mapping recombination hotspots in human phosphoglucomutase (PGM 1). Hum. Mol. Genet. 8: 1699-1706.
4. Bro, C., et al. 2005. Improvement of galactose uptake in *Saccharomyces cerevisiae* through overexpression of phosphoglucomutase: example of transcript analysis as a tool in inverse metabolic engineering. Appl. Environ. Microbiol. 71: 6465-6472.
5. Buchanan, J.T., et al. 2005. Streptococcus iniae phosphoglucomutase is a virulence factor and a target for vaccine development. Infect. Immun. 73: 6935-6944.
6. McCarthy, T.R., et al. 2005. Overexpression of *Mycobacterium tuberculosis* manB, a phosphomannomutase that increases phosphatidylinositol mannoside biosynthesis in *Mycobacterium* smegmatis and mycobacterial association with human macrophages. Mol. Microbiol. 58: 774-790.

CHROMOSOMAL LOCATION

Genetic locus: Pgm1 (mouse) mapping to 5 C3.1.

PRODUCT

PGM 1 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 PGM 1 shRNA Plasmid (m): sc-61333-SH and PGM 1 shRNA (m) Lentiviral Particles: sc-61333-V as alternate gene silencing products.

For independent verification of PGM 1 (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-61333A, sc-61333B and sc-61333C.

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

PGM 1 siRNA (m) is recommended for the inhibition of PGM 1 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.

GENE EXPRESSION MONITORING

PGM 1 (D-8): sc-373796 is recommended as a control antibody for monitoring of PGM 1 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 PGM 1 gene expression knockdown using RT-PCR Primer: PGM 1 (m)-PR: sc-61333-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.