

# PGM 1 siRNA (h): sc-61332

## BACKGROUND

Phosphoglucomutase, which belongs to the phosphohexose 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.

## CHROMOSOMAL LOCATION

Genetic locus: PGM1 (human) mapping to 1p31.3.

## PRODUCT

PGM 1 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PGM 1 shRNA Plasmid (h): sc-61332-SH and PGM 1 shRNA (h) Lentiviral Particles: sc-61332-V as alternate gene silencing products.

For independent verification of PGM 1 (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-61332A, sc-61332B and sc-61332C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

PGM 1 siRNA (h) is recommended for the inhibition of PGM 1 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  $\mu$ M in 66  $\mu$ l. 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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 (h)-PR: sc-61332-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Gong, L., et al. 2018. A functional interplay between  $\Delta$ 133p53 and  $\Delta$ Np63 in promoting glycolytic metabolism to fuel cancer cell proliferation. *Oncogene* 37: 2150-2164.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.