

# PGM 1 (Y-173): sc-100411

## 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: PGM 1, PGM 2 and PGM 3. These three genetic forms of PGM differ in amino acid sequences but catalyze the same reactions, therefore indicating that they are isozymes. PGM 1, a 562 amino acid protein, is highly polymorphic; 3 mutations and 4 intragenic recombination events between the 3 mutation sites generate 8 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., et al. 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 (human) mapping to 1p31.3.

## SOURCE

PGM 1 (Y-173) is a mouse monoclonal antibody raised against recombinant PGM 1 of human origin.

## PRODUCT

Each vial contains 100 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## RESEARCH USE

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

## APPLICATIONS

PGM 1 (Y-173) is recommended for detection of PGM 1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PGM 1 siRNA (h): sc-61332, PGM 1 shRNA Plasmid (h): sc-61332-SH and PGM 1 shRNA (h) Lentiviral Particles: sc-61332-V.

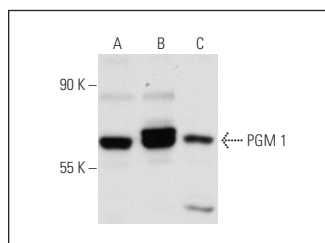
Molecular Weight of PGM 1: 61 kDa.

Positive Controls: PGM 1 (h2): 293T Lysate: sc-171657, Jurkat whole cell lysate: sc-2204 and HeLa whole cell lysate: sc-2200.

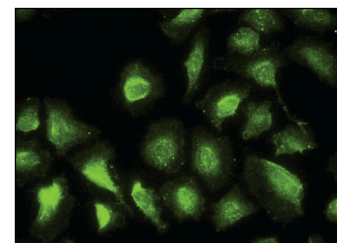
## RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

## DATA



PGM 1 (Y-173): sc-100411. Western blot analysis of PGM 1 expression in non-transfected 293T: sc-117752 (A), human PGM 1 transfected 293T: sc-171657 (B) and Jurkat (C) whole cell lysates.



PGM 1 (Y-173): sc-100411. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells showing cytoplasmic localization.

## SELECT PRODUCT CITATIONS

1. Di Luca, A., et al. 2013. 2D DIGE proteomic analysis of early post mortem muscle exudate highlights the importance of the stress response for improved water-holding capacity of fresh pork meat. *Proteomics* 13: 1528-1544.
2. Zhao, Y., et al. 2018. Selective anti-tumor activity of wogonin targeting the Warburg effect through stabilizing p53. *Pharmacol. Res.* 135: 49-59.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.