

# PGM 2 (K-14): sc-162010

## BACKGROUND

Phosphoglucomutase (PGM), which belongs to the hexose-phosphate mutase family, plays an essential role in glycogen catabolism (glycogenolysis) as well as in the process of glycogen synthesis (glycogenesis). During glycogenolysis, PGM converts glucose-1-phosphate (Glc-1-P) to glucose-6-phosphate (Glc-6-P), 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 five structural loci: PGM 1, PGM 2, PGM 3, PGM 4 and Aciculin. These five genetic forms of PGM differ in amino acid sequences but catalyze the same reactions, therefore indicating that they are isozymes. PGM 2, a 612 amino acid protein, is expressed in lung, spleen and thymus, and localizes to the cytoplasm. It has been suggested that PGM 2 may play a role in congenital immunodeficiencies.

## REFERENCES

1. Takahashi, N., et al. 1983. 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. 2000. 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. Howard, S.C., et al. 2005. Increased phosphoglucomutase activity suppresses the galactose growth defect associated with elevated levels of Ras signaling in *S. cerevisiae*. *Curr. Genet.* 49: 1-6.
7. 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.
8. Csutora, P., et al. 2006. Lithium induces phosphoglucomutase activity in various tissues of rats and in bipolar patients. *Int. J. Neuropsychopharmacol.* 9: 613-619.
9. Maliekal, P., et al. 2007. Molecular identification of mammalian phosphopentomutase and glucose-1,6-bisphosphate synthase, two members of the  $\alpha$ -D-phosphohexomutase family. *J. Biol. Chem.* 282: 31844-31851.

## CHROMOSOMAL LOCATION

Genetic locus: PGM2 (human) mapping to 4p14; Pgm2 (mouse) mapping to 4 C6.

## SOURCE

PGM 2 (K-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of PGM 2 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-162010 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

PGM 2 (K-14) is recommended for detection of PGM 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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); non cross-reactive with other PGM family members.

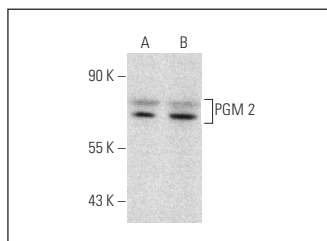
PGM 2 (K-14) is also recommended for detection of PGM 2 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for PGM 2 siRNA (h): sc-89239, PGM 2 siRNA (m): sc-108051, PGM 2 shRNA Plasmid (h): sc-89239-SH, PGM 2 shRNA Plasmid (m): sc-108051-SH, PGM 2 shRNA (h) Lentiviral Particles: sc-89239-V and PGM 2 shRNA (m) Lentiviral Particles: sc-108051-V.

Molecular Weight of PGM 2: 68 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, K-562 nuclear extract: sc-2130 or HEL 92.1.7 cell lysate: sc-2270.

## DATA



PGM 2 (K-14): sc-162010. Western blot analysis of PGM 2 expression in HEL 92.1.7 (A) and K-562 (B) nuclear extracts.

## STORAGE

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

## RESEARCH USE

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