

PGAM1/4 (C-5): sc-376638

BACKGROUND

Members of the PGAM (phosphoglycerate mutase) family of proteins are important components of glucose and 2,3-BPGA (2,3-bisphosphoglycerate) metabolism. They are responsible for catalyzing the transfer of phospho groups between the carbon atoms of phosphoglycerates. In mammals there are two types of PGAM isozymes: PGAM1 (also known as PGAMB) and PGAM2 (also known as PGAMA). In the cell, PGAM1 and PGAM2 exist as either homodimers or heterodimers and are responsible for the interconversion of 3-phosphoglycerate and 2-phosphoglycerate. PGAM2 homodimers are expressed in skeletal muscle, mature sperm cells and heart; PGAM1 homodimers are found in most other tissues; and PGAM1/PGAM2 heterodimers are found exclusively in the heart. PGAM4, also known as PGAM3, is a protein formerly considered to be specific to humans. Initially the PGAM4 gene was described as a pseudogene but it is now known to encode a functional protein at least 25 million years old. The gene encoding PGAM4 is believed to have originated by retrotransposition, with the original copy being the PGAM1 gene.

REFERENCES

1. Zhang, J., et al. 2001. Mouse phosphoglycerate mutase M and B isozymes: cDNA cloning, enzyme activity assay and mapping. *Gene* 264: 273-279.
2. Betrán, E., et al. 2002. Evolution of the phosphoglycerate mutase processed gene in human and chimpanzee revealing the origin of a new primate gene. *Mol. Biol. Evol.* 19: 654-663.
3. Shalom-Barak, T., et al. 2002. A p21-activated kinase-controlled metabolic switch up-regulates phagocyte NADPH oxidase. *J. Biol. Chem.* 277: 40659-40665.
4. Saavedra, E., et al. 2005. Glycolysis in *Entamoeba histolytica*. Biochemical characterization of recombinant glycolytic enzymes and flux control analysis. *FEBS J.* 272: 1767-1783.
5. Evans, M.J., et al. 2005. Target discovery in small-molecule cell-based screens by *in situ* proteome reactivity profiling. *Nat. Biotechnol.* 23: 1303-1307.
6. de Aauri, P., et al. 2005. Characterization of the first described mutation of human red blood cell phosphoglycerate mutase. *Biochim. Biophys. Acta* 1740: 403-410.
7. Huang, L.J., et al. 2006. Proteomic analysis of secreted proteins of non-small cell lung cancer. *Ai Zheng* 25: 1361-1367.
8. Su, H.X., et al. 2007. Screening cellular proteins binding to the core region of hepatitis C virus RNA genome with digoxin-labeled nucleic acids. *Intervirology* 50: 303-309.

CHROMOSOMAL LOCATION

Genetic locus: PGAM1 (human) mapping to 10q24.1, PGAM4 (human) mapping to Xq21.1; Pgam1 (mouse) mapping to 19 C3.

SOURCE

PGAM1/4 (C-5) is a mouse monoclonal antibody raised against a peptide mapping within an internal region of PGAM1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PGAM1/4 (C-5) is recommended for detection of PGAM1 of mouse, rat and human origin, and PGAM4 of human origin by Western Blotting (starting dilution 1:100, 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).

PGAM1/4 (C-5) is also recommended for detection of PGAM1 and PGAM4 in additional species, including equine, canine, bovine and porcine.

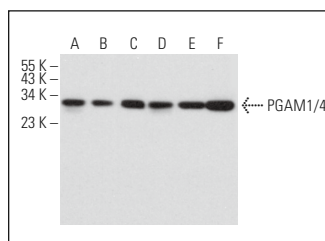
Suitable for use as control antibody for PGAM1 siRNA (m): sc-62782, PGAM1 shRNA Plasmid (m): sc-62782-SH and PGAM1 shRNA (m) Lentiviral Particles: sc-62782-V.

Molecular Weight of PGAM1 monomer: 29 kDa.

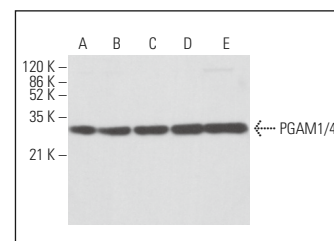
Molecular Weight of PGAM4 monomer: 29 kDa.

Positive Controls: F9 cell lysate: sc-2245, HL-60 whole cell lysate: sc-2209 or A-431 whole cell lysate: sc-2201.

DATA



PGAM1/4 (C-5): sc-376638. Western blot analysis of PGAM1/4 expression in MOLT-4 (A), A549 (B), EOC 20 (C), OVCAR-3 (D), PC-12 (E) and A2058 (F) whole cell lysates.



PGAM1/4 (C-5): sc-376638. Western blot analysis of PGAM1/4 expression in HL-60 (A), Jurkat (B), WI-38 (C), A-431 (D) and F9 (E) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Liu, Z.G., et al. 2018. Phosphoglycerate mutase 1 is highly expressed in C6 glioma cells and human astrocytoma. *Oncol. Lett.* 15: 8935-8940.
2. Garcia-Martin, R., et al. 2022. Tissue differences in the exosomal/small extracellular vesicle proteome and their potential as indicators of altered tissue metabolism. *Cell Rep.* 38: 110277.

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.