

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

- Zhang, J., et al. 2001. Mouse phosphoglycerate mutase M and B isozymes: cDNA cloning, enzyme activity assay and mapping. *Gene* 264: 273-279.
- 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.
- Shalom-Barak, T., et al. 2002. A p21-activated kinase-controlled metabolic switch up-regulates phagocyte NADPH oxidase. *J. Biol. Chem.* 277: 40659-40665.
- Saavedra, E., et al. 2005. Glycolysis in *Entamoeba histolytica*. Biochemical characterization of recombinant glycolytic enzymes and flux control analysis. *FEBS J.* 272: 1767-1783.
- 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.
- de Tauri, P., et al. 2005. Characterization of the first described mutation of human red blood cell phosphoglycerate mutase. *Biochim. Biophys. Acta* 1740: 403-410.
- Huang, L.J., et al. 2006. Proteomic analysis of secreted proteins of non-small cell lung cancer. *Ai Zheng* 25: 1361-1367.
- 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.

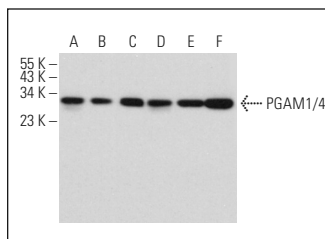
Suitable for use as control antibody for PGAM1 siRNA (m): sc-62782, PGAM1 shRNA Plasmid (m): sc-62782-SH and PGAM1 shRNA (m) Lentiviral Particles: sc-62782-V.

Molecular Weight of PGAM1 monomer: 29 kDa.

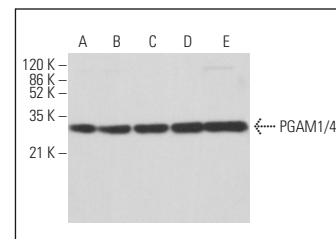
Molecular Weight of PGAM4 monomer: 29 kDa.

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

- Liu, Z.G., et al. 2018. Phosphoglycerate mutase 1 is highly expressed in C6 glioma cells and human astrocytoma. *Oncol. Lett.* 15: 8935-8940.
- 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.