

PGAM1/4 (D-5): sc-365677

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.
- Shalom-Barak, T. and Knaus, U.G. 2002. A p21-activated kinase-controlled metabolic switch upregulates phagocyte NADPH oxidase. *J. Biol. Chem.* 277: 40659-40665.
- 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.

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 (D-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 116-147 within an internal region of PGAM1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PGAM1/4 (D-5) is available conjugated to agarose (sc-365677 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365677 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365677 PE), fluorescein (sc-365677 FITC), Alexa Fluor® 488 (sc-365677 AF488), Alexa Fluor® 546 (sc-365677 AF546), Alexa Fluor® 594 (sc-365677 AF594) or Alexa Fluor® 647 (sc-365677 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365677 AF680) or Alexa Fluor® 790 (sc-365677 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365677 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

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

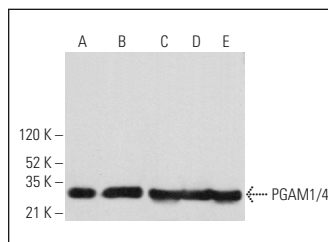
Suitable for use as control antibody for PGAM1 siRNA (m): sc-62782, PGAM1 shRNA Plasmid (m): sc-62782-SH and PGAM1 shRNA (m) Lentiviral Particles: sc-62782-V.

Molecular Weight of PGAM1 monomer: 29 kDa.

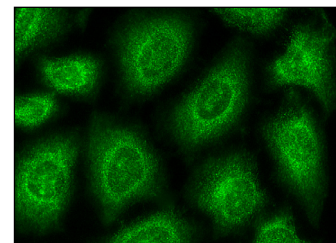
Molecular Weight of PGAM4 monomer: 29 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, Jurkat whole cell lysate: sc-2204 or HL-60 whole cell lysate: sc-2209.

DATA



PGAM1/4 (D-5): sc-365677. Western blot analysis of PGAM1/4 expression in HeLa nuclear extract (A) and HL-60 (B), Jurkat (C), F9 (D) and WI-38 (E) whole cell lysates.



PGAM1/4 (D-5): sc-365677. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

- Santos, F.M., et al. 2018. iTRAQ quantitative proteomic analysis of vitreous from patients with retinal detachment. *Int. J. Mol. Sci.* 19: 1157.
- Brandão, B.B., et al. 2020. Dynamic changes in DICER levels in adipose tissue control metabolic adaptations to exercise. *Proc. Natl. Acad. Sci. USA* 117: 23932-23941.
- Albanesi, J., et al. 2020. Transcriptional and metabolic dissection of ATRA-induced granulocytic differentiation in NB4 acute promyelocytic leukemia cells. *Cells* 9: 2423.

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.

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