

GPI (H-9): sc-271459

BACKGROUND

Glucose-6-phosphate isomerase (GPI) has many other names, including phosphohexose isomerase (PHI), neuroleukin (NLK) and spermantigen-36 (SA-36). GPI is a cytoplasmic homodimer belonging to the GPI family. It is a neurotrophic factor for spinal and sensory neurons and is involved in glycolysis and gluconeogenesis. Defects or mutations in GPI can cause hereditary nonspherocytic hemolytic anemia (HA), hydrops fetalis, immediate neonatal death and neuro-logical impairment.

REFERENCES

1. Beutler, E., et al. 1997. Glucosephosphate isomerase (GPI) deficiency mutations associated with hereditary nonspherocytic hemolytic anemia (HNSHA). *Blood Cells Mol. Dis.* 23: 402-409.
2. Kugler, W., et al. 1998. Molecular basis of neurological dysfunction coupled with haemolytic anemia in human glucose-6-phosphate isomerase (GPI) deficiency. *Hum. Genet.* 103: 450-454.
3. Schulz, L.C., et al. 2003. Glucose-6-phosphate isomerase is necessary for embryo implantation in the domestic ferret. *Proc. Natl. Acad. Sci. USA* 100: 8561-8566.
4. Muraki, Y., et al. 2004. Glucose-6-phosphate isomerase variants play a key role in the generation of anti-GPI antibodies: possible mechanism of autoantibody production. *Biochem. Biophys. Res. Commun.* 323: 518-522.
5. Graham Solomons, J.T., et al. 2004. The crystal structure of mouse phosphoglucose isomerase at 1.6Å resolution and its complex with glucose-6-phosphate reveals the catalytic mechanism of sugar ring opening. *J. Mol. Biol.* 342: 847-860.
6. Schubert, D., et al. 2004. Immunization with glucose-6-phosphate isomerase induces T cell-dependent peripheral polyarthritis in genetically unaltered mice. *J. Immunol.* 172: 4503-4509.

CHROMOSOMAL LOCATION

Genetic locus: GPI (human) mapping to 19q13.11; Gpi1 (mouse) mapping to 7 B1.

SOURCE

GPI (H-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 67-102 near the N-terminus of GPI 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.

Blocking peptide available for competition studies, sc-271459 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

GPI (H-9) is recommended for detection of GPI of mouse, rat and 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).

GPI (H-9) is also recommended for detection of GPI in additional species, including porcine.

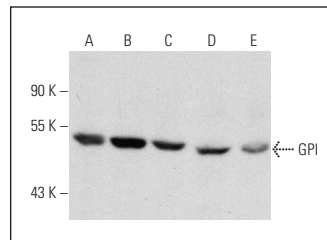
Suitable for use as control antibody for GPI siRNA (h): sc-43810, GPI siRNA (m): sc-44813, GPI siRNA (r): sc-270226, GPI shRNA Plasmid (h): sc-43810-SH, GPI shRNA Plasmid (m): sc-44813-SH, GPI shRNA Plasmid (r): sc-270226-SH, GPI shRNA (h) Lentiviral Particles: sc-43810-V, GPI shRNA (m) Lentiviral Particles: sc-44813-V and GPI shRNA (r) Lentiviral Particles: sc-270226-V.

Molecular Weight (predicted) of GPI: 63 kDa.

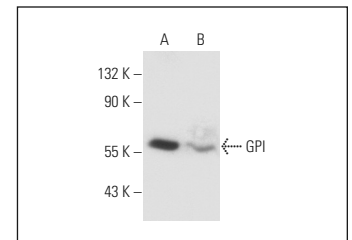
Molecular Weight (observed) of GPI: 55 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, HeLa whole cell lysate: sc-2200 or HEK293 whole cell lysate: sc-45136.

DATA



GPI (H-9): sc-271459. Western blot analysis of GPI expression in HeLa (A), NCI-H292 (B), NIH:OVCA3 (C), Sol8 (D) and Neuro-2A (E) whole cell lysates.



GPI (H-9): sc-271459. Western blot analysis of GPI expression in HEK293 (A) and Hep G2 (B) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Raphael, I., et al. 2012. Microwave and magnetic (M²) proteomics of the experimental autoimmune encephalomyelitis animal model of multiple sclerosis. *Electrophoresis* 33: 3810-3819.
2. Moreno-Sánchez, R., et al. 2021. Regulatory role of acetylation on enzyme activity and fluxes of energy metabolism pathways. *Biochim. Biophys. Acta Gen. Subj.* 1865: 130021.
3. Zhou, W.J., et al. 2022. Fructose-1,6-bisphosphate prevents pregnancy loss by inducing decidual COX-2⁺ macrophage differentiation. *Sci. Adv.* 8: eabj2488.
4. Hou, Y., et al. 2023. METTL14 modulates glycolysis to inhibit colorectal tumorigenesis in p53-wild-type cells. *EMBO Rep.* E-published.

RESEARCH USE

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