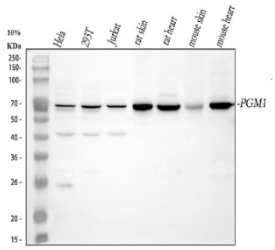
PGM1 Antibody / Phosphoglucomutase 1 (FY12445)

Catalog No.	Formulation	Size
FY12445	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	P36871
Applications	Western Blot : 0.25-0.5ug/ml ELISA : 0.1-0.5ug/ml
Limitations	This PGM1 antibody is available for research use only.



Western blot analysis of PGM1 using anti-PGM1 antibody. Lane 1: human Hela whole cell lysates, Lane 2: human 293T whole cell lysates, Lane 3: human Jurkat whole cell lysates, Lane 4: rat skin tissue lysates, Lane 5: rat heart tissue lysates, Lane 6: mouse skin tissue lysates, Lane 7: mouse heart tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-PGM1 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using enhanced chemiluminescent. PGM1 (~61 kDa predicted) was detected primarily at ~70 kDa, consistent with phosphorylation-dependent migration shifts. A secondary ~40 kDa band in human samples corresponds to a known N-terminal proteolytic fragment reported in mammalian cells.

Description

PGM1 antibody recognizes phosphoglucomutase-1, a key enzyme in carbohydrate metabolism that catalyzes the

reversible conversion of glucose-1-phosphate and glucose-6-phosphate. PGM1 functions at the crossroads of glycogen metabolism and glycolysis, influencing energy storage and utilization in multiple tissues including liver, muscle, and brain. The enzyme requires magnesium ions and a phosphoserine residue at its active site for catalytic activity. The PGM1 antibody is an essential reagent for biochemical and metabolic research, enabling analysis of energy metabolism, glycogen synthesis disorders, and enzymatic regulation across diverse physiological systems.

PGM1 is encoded by the PGM1 gene on human chromosome 1p31.3. It belongs to the phosphoglucomutase family, which includes several isoforms with distinct tissue distributions. The protein is composed of four structural domains forming a catalytic cleft that coordinates substrate binding and phosphoryl transfer. PGM1 deficiency is an inherited metabolic disorder characterized by impaired glycogen metabolism, hypoglycemia, and variable involvement of muscle and liver function. Mutations in the gene lead to partial or complete loss of enzyme activity, resulting in congenital disorder of glycosylation type It (PGM1-CDG).

The PGM1 antibody is commonly used in western blot and immunohistochemistry to detect the 61-63 kDa cytosolic protein. Expression studies demonstrate high levels in metabolically active tissues, including skeletal muscle, cardiac muscle, and hepatocytes. Immunofluorescence assays localize PGM1 primarily to the cytoplasm, consistent with its role in glucose metabolism. Functional studies have linked PGM1 activity to the regulation of glycogenolysis and the maintenance of glucose flux during fasting or exercise. Because of its importance in energy homeostasis, PGM1 serves as a biomarker for metabolic adaptation and carbohydrate-processing disorders.

PGM1 interacts with glycolytic enzymes and participates in metabolic channeling, facilitating efficient substrate transfer within enzymatic complexes. Recent work has shown that PGM1 expression may change in response to hypoxia, oxidative stress, and insulin signaling. NSJ Bioreagents provides a validated PGM1 antibody optimized for western blot, ELISA, and immunofluorescence applications. This reagent enables accurate quantification of enzyme levels in normal and disease models, supporting ongoing efforts to elucidate carbohydrate metabolism and its dysfunction in inherited and acquired disorders.

Application Notes

Optimal dilution of the PGM1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human PGM1 recombinant protein (Position: M1-Q550) was used as the immunogen for the PGM1 antibody.

Storage

After reconstitution, the PGM1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.