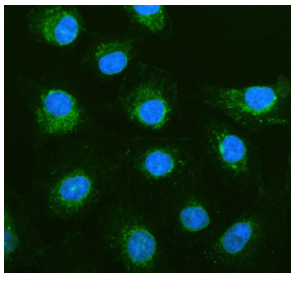
PGAM5 Antibody / Phosphoglycerate mutase family member 5 (FY13196)

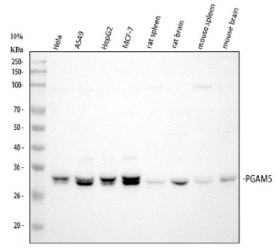
Catalog No.	Formulation	Size
FY13196	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

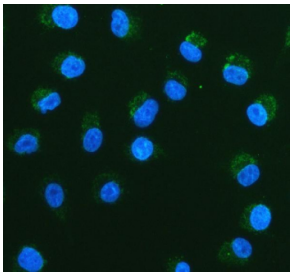
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q96HS1
Localization	Mitochondria
Applications	Western Blot : 0.25-0.5ug/ml Immunocytochemistry/Immunofluorescence : 5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This PGAM5 antibody is available for research use only.



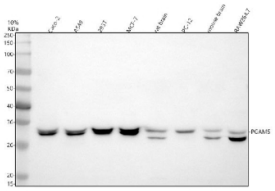
Immunofluorescent staining of PGAM5 using anti-PGAM5 antibody (green). PGAM5 was detected in an immunocytochemical section of human A549 cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-PGAM5 antibody overnight at 4oC. DyLight 488 Conjugated Goat Anti-Rabbit IgG was used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. The section was counterstained with DAPI nuclear stain (blue). Visualize using a fluorescence microscope and filter sets appropriate for the label used.



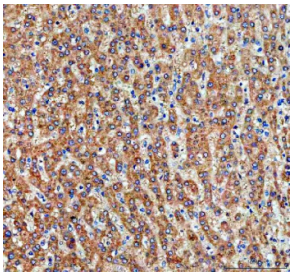
Western blot analysis of PGAM5 using anti-PGAM5 antibody. Electrophoresis was performed on a 8% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human Hela whole cell lysates, Lane 2: human whole cell lysates, Lane 3: human HepG2 whole cell lysates, Lane 4: human MCF-7 whole cell lysates, Lane 5: rat spleen tissue lysates, Lane 6: rat brain tissue lysates, Lane 7: mouse spleen tissue lysates, Lane 8: mouse brain 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-PGAM5 antibody at 1:1000 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 an ECL Plus Western Blotting Substrate. A specific band was detected for PGAM5 at approximately 32 kDa. The expected molecular weight of PGAM5 is ~32 kDa. Human samples show a tight doublet at ~32 kDa, consistent with isoform and processing heterogeneity.



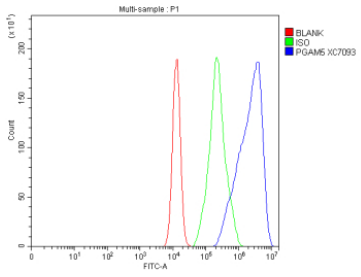
Immunofluorescent staining of PGAM5 using anti-PGAM5 antibody (green). PGAM5 was detected in an immunocytochemical section of human A549 cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-PGAM5 antibody overnight at 4oC. DyLight 488 Conjugated Goat Anti-Rabbit IgG was used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. The section was counterstained with DAPI nuclear stain (blue). Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Western blot analysis of PGAM5 using anti-PGAM5 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human Caco-2 whole cell lysates, Lane 2: human whole cell lysates, Lane 3: human 293T whole cell lysates, Lane 4: human MCF-7 whole cell lysates, Lane 5: rat brain tissue lysates, Lane 6: rat PC-12 whole cell lysates, Lane 7: mouse brain tissue lysates, Lane 8: mouse RAW264.7 whole cell 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-PGAM5 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 an ECL Plus Western Blotting Substrate. Western blot detection of PGAM5 shows a tight doublet at ~32 kDa in human cell lines, consistent with isoform and processing heterogeneity, and an additional ~28 kDa band in mouse and rat brain and RAW264.7 lysate that matches the known PARL-processed form of PGAM5.



Immunohistochemical staining of PGAM5 using anti-PGAM5 antibody. PGAM5 was detected in a paraffin-embedded section of human liver cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1:100 rabbit anti-PGAM5 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Flow Cytometry analysis of cells using anti-PGAM5 antibody. Overlay histogram showing cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-PGAM5 antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.

Description

PGAM5 antibody detects Phosphoglycerate mutase family member 5, a mitochondrial serine/threonine phosphatase involved in apoptosis, mitophagy, and stress-induced signal transduction. The UniProt recommended name is Phosphoglycerate mutase family member 5 (PGAM5). Despite its name, PGAM5 lacks mutase activity and instead functions as a protein phosphatase that regulates mitochondrial dynamics and cellular stress responses.

Functionally, PGAM5 antibody identifies a 289-amino-acid mitochondrial protein localized to the outer mitochondrial membrane. PGAM5 acts downstream of the MAP3K5-ASK1 signaling axis, dephosphorylating substrates that mediate programmed necrosis and mitophagy. It interacts with proteins such as KEAP1, DRP1, and BCL-XL, influencing mitochondrial fission, redox homeostasis, and apoptosis regulation. By modulating DRP1 phosphorylation, PGAM5 facilitates mitochondrial fragmentation during stress-induced cell death and promotes removal of damaged mitochondria through autophagic processes.

The PGAM5 gene is located on chromosome 12q24.33 and is expressed in metabolically active tissues, including liver, brain, and skeletal muscle. Through its phosphatase activity, PGAM5 integrates oxidative stress signals with mitochondrial quality control, acting as a central node in determining cell fate under energy or redox imbalance.

Pathologically, dysregulation of PGAM5 contributes to neurodegenerative diseases, ischemia-reperfusion injury, and cancer. In neurons, excessive PGAM5 activation leads to mitochondrial fragmentation and cell death, while reduced expression impairs mitophagy and promotes accumulation of damaged mitochondria. In cancer cells, PGAM5 modulates metabolism and apoptosis sensitivity, linking mitochondrial signaling to tumor progression. Research using PGAM5 antibody supports studies in mitochondrial biology, apoptosis, and stress adaptation pathways.

PGAM5 antibody is validated for western blotting, immunohistochemistry, and immunofluorescence to detect mitochondrial phosphatases and regulators of cell death. NSJ Bioreagents provides PGAM5 antibody reagents optimized for use in apoptosis signaling, redox regulation, and neurobiology research.

Structurally, Phosphoglycerate mutase family member 5 contains a C-terminal catalytic domain with a histidine phosphatase motif (His-Arg-Ser) and an N-terminal transmembrane anchor that tethers it to the outer mitochondrial membrane. The active site structure enables PGAM5 to recognize phosphorylated substrates associated with mitochondrial fission machinery. This antibody facilitates exploration of PGAM5's role in mitochondrial remodeling, necroptosis, and energy metabolism.

Application Notes

Optimal dilution of the PGAM5 antibody should be determined by the researcher.

Immunogen

E.coli-derived human PGAM5 recombinant protein (Position: D63-L252) was used as the immunogen for the PGAM5 antibody.

Storage

After reconstitution, the PGAM5 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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