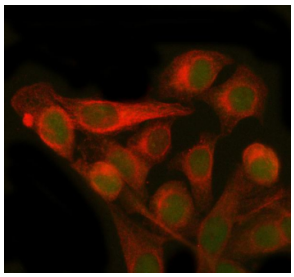
PMM2 Antibody / Phosphomannomutase 2 (FY12302)

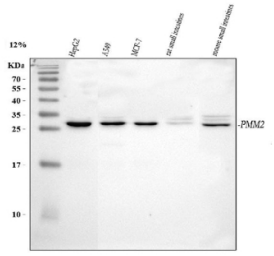
Catalog No.	Formulation	Size
FY12302	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

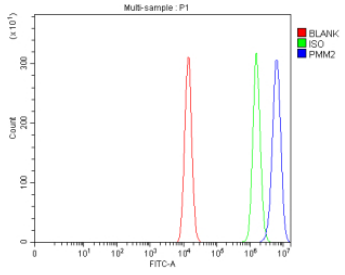
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	O15305
Applications	Western Blot : 0.25-0.5ug/ml Immunocytochemistry : 5ug/ml Immunofluorescence : 5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This PMM2 antibody is available for research use only.



Immunofluorescent staining of PMM2 using anti-PMM2 antibody (green) and anti-Beta Tubulin antibody (red). PMM2 was detected in immunocytochemical section of HELA cell. 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-PMM2 antibody and mouse anti-Beta Tubulin antibody overnight at 4oC. DyLight 488 Conjugated Goat Anti-Rabbit IgG and Cy3 Conjugated Goat Anti-Mouse IgG were used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Western blot analysis of PMM2 using anti-PMM2 antibody. Lane 1: human HepG2 whole cell lysates, Lane 2: human whole cell lysates, Lane 3: human MCF-7 whole cell lysates, Lane 4: rat small intestines tissue lysates, Lane 5: mouse small intestines 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-PMM2 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. The expected molecular weight of PMM2 is ~28 kDa.



Flow Cytometry analysis of HEL cells using anti-PMM2 antibody. Overlay histogram showing HEL 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-PMM2 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 (Red line) was also used as a control.

Description

PMM2 antibody detects Phosphomannomutase 2, encoded by the PMM2 gene on chromosome 16p13.2. PMM2 antibody is widely used in research on glycosylation disorders, metabolism, and enzymology. PMM2 is a cytoplasmic enzyme that catalyzes the interconversion of mannose-6-phosphate and mannose-1-phosphate. This reaction is a key step in the synthesis of GDP-mannose, which is essential for N-linked glycosylation, glycosylphosphatidylinositol anchor formation, and protein glycan modification.

Structurally, PMM2 is a ~28 kDa enzyme belonging to the phosphohexomutase family. It forms dimers and requires magnesium ions for catalytic activity. The enzyme adopts an alpha/beta fold typical of sugar phosphate mutases and contains an active-site serine residue that is phosphorylated during catalysis. PMM2 is highly conserved among species, underscoring its fundamental role in cell biology.

Functionally, PMM2 is critical for proper glycoprotein biosynthesis. Its deficiency results in impaired glycosylation, disrupting protein folding, trafficking, and function. This enzyme is ubiquitously expressed, with highest activity in tissues requiring extensive glycosylation, such as liver and brain. Researchers use PMM2 antibody to study glycosylation pathways, metabolic regulation, and congenital disorders of glycosylation (CDG).

Clinically, mutations in PMM2 cause congenital disorder of glycosylation type Ia (CDG-Ia), also known as Jaeken syndrome. This is the most common CDG and is characterized by developmental delay, hypotonia, coagulopathy, and multi-organ dysfunction. More than 100 pathogenic variants of PMM2 have been described, with variable severity. Therapeutic approaches under investigation include dietary supplementation and enzyme replacement strategies. NSJ Bioreagents provides PMM2 antibody for research in glycosylation disorders, enzymology, and disease models.

Experimentally, PMM2 antibody is applied in western blotting to detect the ~28 kDa protein, in immunohistochemistry to study tissue distribution, and in immunofluorescence to assess subcellular localization. Enzymatic assays combined with PMM2 antibody provide functional insights into sugar phosphate metabolism.

Application Notes

Optimal dilution of the PMM2 antibody should be determined by the researcher.

Immunogen

E.coli-derived human PMM2 recombinant protein (Position: D48-S246) was used as the immunogen for the PMM2 antibody.

Storage

After reconstitution, the PMM2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.