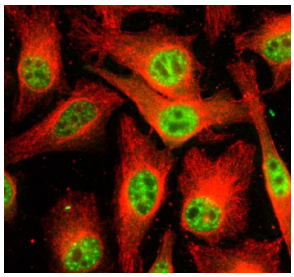
PRP4K Antibody / Pre-mRNA-processing factor 4B kinase (FY12937)

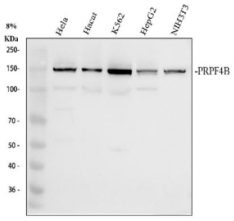
Catalog No.	Formulation	Size
FY12937	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

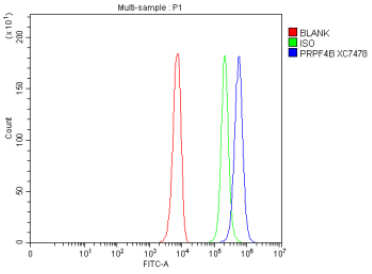
Availability	1-2 days
Species Reactivity	Human, Mouse
Format	Lyophilized
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q13523
Localization	Nuclear
Applications	Western Blot : 0.25-0.5ug/ml Immunocytochemistry/Immunofluorescence : 5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This PRP4K antibody is available for research use only.



Immunofluorescent staining of PRP4K using anti-PRP4K antibody (green) and anti-Beta Tubulin antibody (red). PRP4K was detected in an immunocytochemical section of Hela 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-PRP4K 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 PRP4K using anti-PRP4K 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 Hacat whole cell lysates, Lane 3: human K562 whole cell lysates, Lane 4: human HepG2 whole cell lysates, Lane 5: mouse NIH/3T3 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-PRP4K 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. A strong band at ~140-150 kDa is detected in human cell lysates, with a weaker band just above the 100 kDa marker. The higher migration is consistent with hyperphosphorylated PRP4K, while the lower band represents hypo-phosphorylated or truncated protein.



Flow Cytometry analysis of K562 cells using anti-PRP4K antibody. Overlay histogram showing K562 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-PRP4K 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

PRP4K antibody detects Pre-mRNA-processing factor 4B kinase, also known as PRP4 kinase (PRPF4B), a dual-specificity serine/threonine-tyrosine kinase involved in pre-mRNA splicing and signal transduction. The UniProt recommended name is Serine/threonine-protein kinase PRP4 homolog (PRPF4B), and alternate names include pre-mRNA-processing factor 4 homolog B, PRP4 kinase, and PRPF4-related kinase. PRP4K functions at the intersection of RNA processing and cell signaling, linking splicing machinery dynamics to stress and growth pathways.

PRP4K antibody targets a nuclear kinase that associates with spliceosomal components and regulates phosphorylation of splicing factors such as SF3B1 and PRP6, influencing spliceosome assembly and mRNA maturation. PRP4K activity is essential for accurate exon recognition and alternative splicing decisions, affecting transcriptome diversity. The protein also modulates mitotic checkpoint signaling through interaction with BUB1 and MAD1 complexes, ensuring proper chromosome segregation. Dysregulation of PRPF4B expression has been associated with aberrant splicing events, genomic instability, and tumorigenesis.

The PRPF4B gene is located on chromosome 6p21.31 and encodes a protein of approximately 1007 amino acids containing an N-terminal kinase domain and a C-terminal proline-rich regulatory region. PRP4K phosphorylates SR-rich splicing proteins, coordinating RNA processing with transcriptional elongation and stress responses. Its activity is regulated by phosphorylation, autoinhibition, and interactions with 14-3-3 proteins. Elevated expression of PRP4K has been observed in cancers such as breast, ovarian, and glioblastoma, where it influences epithelial-mesenchymal transition (EMT) and drug resistance phenotypes.

Researchers employ PRP4K antibody for western blotting, immunofluorescence, and immunoprecipitation to monitor nuclear localization, post-translational modifications, and spliceosomal associations. The kinase also participates in response to genotoxic stress and growth factor signaling via ERK and JNK cascades. Functional depletion studies reveal that loss of PRP4K impairs cell cycle progression and enhances sensitivity to DNA-damaging agents. Because PRP4K integrates splicing control with cell survival signaling, it has emerged as a potential therapeutic target for cancer intervention. NSJ Bioreagents provides validated reagents for detecting human, mouse, and rat PRP4K suitable for

cellular, molecular, and proteomic analyses.

Application Notes

Optimal dilution of the PRP4K antibody should be determined by the researcher.

Immunogen

E.coli-derived human PRP4K recombinant protein (Position: P94-I1007) was used as the immunogen for the PRP4K antibody.

Storage

After reconstitution, the PRP4K antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.