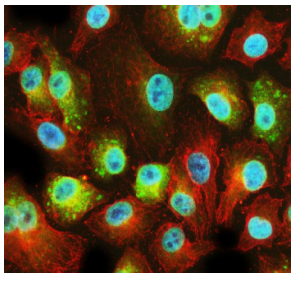
PFDN2 Antibody / Prefoldin subunit 2 (FY13323)

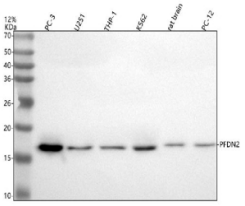
Catalog No.	Formulation	Size
FY13323	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

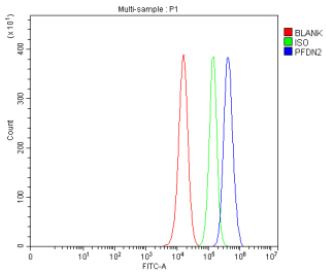
Availability	1-2 days
Species Reactivity	Human, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q9UHV9
Localization	Nucleus, Cytoplasm, Mitochondria
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 PFDN2 antibody is available for research use only.



Immunofluorescent staining of PFDN2 using anti-PFDN2 antibody (green) and anti-Beta Tubulin antibody (red). PFDN2 was detected in an immunocytochemical section of 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-PFDN2 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. 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 PFDN2 using anti-PFDN2 antibody. Electrophoresis was performed on a 12% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human PC-3 whole cell lysates, Lane 2: human U251 whole cell lysates, Lane 3: human THP-1 whole cell lysates, Lane 4: human K562 whole cell lysates, Lane 5: rat brain tissue lysates, Lane 6: rat PC-12 whole cel 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-PFDN2 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. The expected molecular weight of PFDN2 is ~17 kDa.



Flow Cytometry analysis of PC-3 cells using anti-PFDN2 antibody. Overlay histogram showing PC-3 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-PFDN2 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

PFDN2 antibody detects Prefoldin subunit 2, a cytoplasmic molecular chaperone encoded by the PFDN2 gene on chromosome 1q23.3. PFDN2 is an essential component of the prefoldin complex, a hexameric cochaperone that assists in folding nascent polypeptides and preventing aggregation of cytoskeletal proteins such as actin and tubulin. The prefoldin complex captures newly synthesized, unfolded proteins and transfers them to the group II chaperonin CCT (TCP-1 ring complex) for final folding, ensuring proper assembly of cytoskeletal and structural proteins required for cell function.

By stabilizing actin and tubulin subunits, PFDN2 supports cytoskeletal organization, cell division, and intracellular transport. Its role as a chaperone subunit is central to maintaining proteostasis, allowing cells to manage misfolded proteins during stress conditions. PFDN2 expression is ubiquitous and tightly regulated to sustain cytoskeletal dynamics across tissues, particularly in neurons, epithelial cells, and fibroblasts.

Structurally, PFDN2 forms one arm of the jellyfish-shaped prefoldin complex, which consists of six subunits (PFDN1-6) arranged in a heterohexameric structure. This configuration provides flexibility for binding diverse substrates. PFDN2 contains coiled-coil and beta-hairpin motifs that mediate interactions with unfolded protein substrates, helping maintain their solubility until delivery to the CCT complex. Its conservation across eukaryotes highlights its fundamental role in protein quality control and cellular stability.

PFDN2 also participates in transcriptional regulation and cellular stress responses, possibly through nuclear interactions under certain conditions. It functions within the broader protein folding and proteostasis network, cooperating with heat shock proteins such as HSP70 and chaperonins to maintain a balanced proteome. Disruption of PFDN2 or other prefoldin subunits leads to cytoskeletal instability, reduced cell proliferation, and heightened sensitivity to proteotoxic stress.

Dysregulation of PFDN2 expression has been linked to several diseases. Reduced prefoldin activity can contribute to neurodegenerative disorders where protein misfolding is pathogenic, such as Parkinson's and Huntington's disease. Overexpression of PFDN2 has been noted in certain cancers, including hepatocellular and colorectal carcinoma, where enhanced folding capacity may support tumor cell growth and resistance to stress. PFDN2 operates in the protein folding and cytoskeletal assembly pathways, underscoring its role in maintaining cell shape and function.

Immunohistochemical staining using PFDN2 antibody demonstrates cytoplasmic localization consistent with its chaperone activity. The PFDN2 antibody from NSJ Bioreagents is a valuable reagent for studying protein folding mechanisms, cytoskeletal organization, and proteostasis in normal and disease conditions.

Application Notes

Optimal dilution of the PFDN2 antibody should be determined by the researcher.

Immunogen

E.coli-derived human PFDN2 recombinant protein (Position: K18-Q98) was used as the immunogen for the PFDN2 antibody.

Storage

After reconstitution, the PFDN2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.