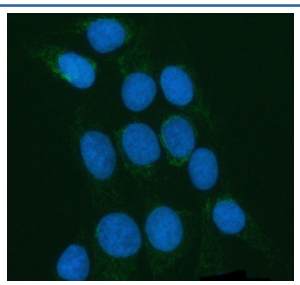
POLDIP2 Antibody / Polymerase delta-interacting protein 2 (FY13166)

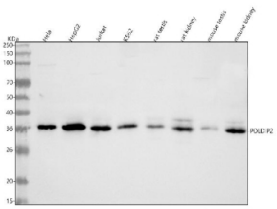
Catalog No.	Formulation	Size
FY13166	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

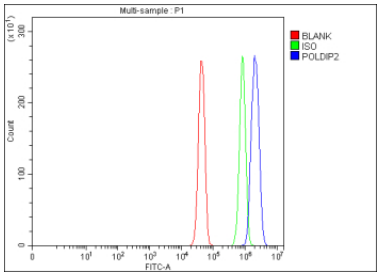
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q9Y2S7
Localization	Mitochondria, Nucleus
Applications	ELISA : 0.1-0.5ug/ml Flow Cytometry : 1-3ug/million cells Immunoprecipitation : 2-4ug/500ug of lysate Immunofluorescence : 5ug/ml Immunocytochemistry : 5ug/ml Western Blot : 0.25-0.5ug/ml
Limitations	This POLDIP2 antibody is available for research use only.



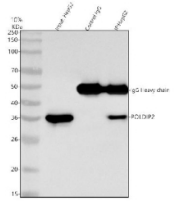
Immunofluorescent staining of POLDIP2 using anti-POLDIP2 antibody (green). POLDIP2 was detected in an immunocytochemical section of U2OS cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-POLDIP2 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 POLDIP2 using anti-POLDIP2 antibody. Lane 1: human Hela whole cell lysates, Lane 2: human HepG2 whole cell lysates, Lane 3: human Jurkat whole cell lysates, Lane 4: human K562 whole cell lysates, Lane 5: rat testis tissue lysates, Lane 6: rat kidney tissue lysates, Lane 7: mouse testis tissue lysates, Lane 8: mouse kidney 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-POLDIP2 antibody at 0.25 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. POLDIP2 antibody detects a prominent band at ~37 kDa across the indicated lysates. Although the theoretical mass is ~42 kDa, POLDIP2 contains an N-terminal mitochondrial targeting sequence that is cleaved upon import, producing a mature ~37 kDa species that predominates in endogenous samples.



Flow Cytometry analysis of U251 cells using anti-POLDIP2 antibody. Overlay histogram showing U251 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-POLDIP2 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.



Immunoprecipitating POLDIP2 in HepG2 whole cell lysate. Western blot analysis of POLDIP2 using anti-POLDIP2 antibody; Lane 1: HepG2 whole cell lysates (30ug); Lane 2: Rabbit control IgG instead of anti-POLDIP2 antibody in HepG2 whole cell lysate; Lane 3: anti-POLDIP2 antibody (2ug) + HepG2 whole cell lysate (500ug). After electrophoresis, proteins were transferred to a membrane. Then the membrane was incubated with rabbit anti-POLDIP2 antibody at a dilution of 0.5 ug/ml and probed with a goat anti-rabbit IgG-HRP secondary antibody. The signal is developed using ECL Plus Western Blotting Substrate. A specific band was detected for POLDIP2 at approximately 38 kDa. The expected molecular weight of POLDIP2 is at 42 kDa.

Description

POLDIP2 antibody detects Polymerase delta-interacting protein 2, a multifunctional protein that regulates DNA replication, repair, and mitochondrial function. The UniProt recommended name is Polymerase delta-interacting protein 2 (POLDIP2). This adaptor protein enhances the activity of DNA polymerase delta and coordinates cellular redox balance, cytoskeletal organization, and oxidative stress responses.

Functionally, POLDIP2 antibody identifies a 368-amino-acid protein localized to the nucleus, cytoplasm, and mitochondria. POLDIP2 binds to DNA polymerase delta subunit p50, stimulating processive DNA synthesis. It also interacts with NADPH oxidase 4 (NOX4), promoting the production of reactive oxygen species for signaling and host defense. In mitochondria, POLDIP2 influences respiratory complex stability and oxidative phosphorylation efficiency.

The POLDIP2 gene is located on chromosome 17q11.2 and is broadly expressed in metabolically active tissues, including heart, liver, and brain. Its expression is induced by stress signals and growth factors, integrating DNA repair, redox signaling, and metabolic regulation.

Pathologically, altered POLDIP2 expression has been linked to vascular remodeling, fibrosis, cancer, and neurodegenerative disorders. Overexpression promotes proliferation and migration in vascular smooth muscle cells, while deficiency impairs mitochondrial respiration and DNA replication fidelity. Research using POLDIP2 antibody supports

studies in DNA metabolism, oxidative stress, and mitochondrial biology.

POLDIP2 antibody is validated for western blotting, immunofluorescence, and immunohistochemistry to detect replication-associated and redox-regulating proteins. NSJ Bioreagents provides POLDIP2 antibody reagents optimized for research in DNA repair, metabolism, and redox signaling.

Structurally, Polymerase delta-interacting protein 2 contains an N-terminal mitochondrial targeting sequence and a YccV-like domain involved in protein-protein interactions. This antibody facilitates investigation of POLDIP2's role in coordinating nuclear and mitochondrial stress responses.

Application Notes

Optimal dilution of the POLDIP2 antibody should be determined by the researcher.

Immunogen

E.coli-derived human POLDIP2 recombinant protein (Position: Q81-Q324) was used as the immunogen for the POLDIP2 antibody.

Storage

After reconstitution, the POLDIP2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.