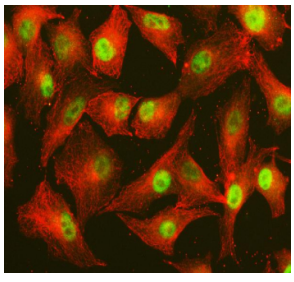
POLD4 Antibody / DNA polymerase delta subunit 4 (FY12316)

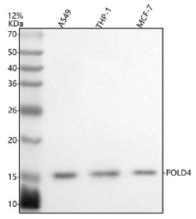
Catalog No.	Formulation	Size
FY12316	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

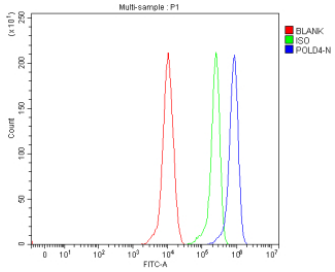
Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q9HCU8
Localization	Nuclear
Applications	Western Blot : 0.25-0.5ug/ml Immunocytochemistry/Immunofluorescence : 5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This POLD4 antibody is available for research use only.



Immunofluorescent staining of POLD4 using anti-POLD4 antibody (green) and anti-Beta Tubulin antibody (red). POLD4 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-POLD4 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 POLD4 using anti-POLD4 antibody. Electrophoresis was performed on a 12% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human whole cell lysates, Lane 2: human THP-1 whole cell lysates, Lane 3: human MCF-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-POLD4 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 POLD4 is ~12 kDa.



Flow Cytometry analysis of THP-1 cells using anti-POLD4 antibody. Overlay histogram showing THP-1 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-POLD4 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

POLD4 antibody detects DNA polymerase delta subunit 4, encoded by the POLD4 gene on chromosome 11q13.4. POLD4 antibody is widely applied in DNA replication, repair, and cell cycle research. POLD4 is a small accessory subunit of DNA polymerase delta, a multi-subunit complex essential for lagging strand DNA synthesis, Okazaki fragment maturation, and DNA repair. POLD4 stabilizes the polymerase complex and enhances its processivity in conjunction with PCNA and replication factor C.

Structurally, POLD4 is a ~12 kDa protein with no catalytic activity but essential stabilizing functions. It interacts with the catalytic subunit POLD1 and accessory subunits POLD2 and POLD3, forming the tetrameric polymerase delta complex. By supporting proper assembly, POLD4 ensures high-fidelity DNA replication and repair.

Functionally, POLD4 contributes to DNA replication, mismatch repair, and recombination. It coordinates lagging strand synthesis, working with FEN1 and DNA ligase I to process Okazaki fragments. Researchers use POLD4 antibody to study DNA replication, checkpoint control, and repair pathways.

Clinically, defects in DNA polymerase delta subunits including POLD4 have been linked to cancer, immunodeficiency, and genomic instability syndromes. Reduced POLD4 expression impairs DNA replication fidelity, contributing to mutagenesis. Because DNA replication is a key therapeutic target, POLD4 is being investigated in oncology. NSJ Bioreagents provides POLD4 antibody for DNA replication, repair, and cancer studies.

Experimentally, POLD4 antibody is applied in western blotting to detect the ~12 kDa protein, in immunoprecipitation to isolate the polymerase delta complex, and in immunofluorescence to study nuclear localization. Chromatin immunoprecipitation with POLD4 antibody supports research on replication fork progression.

Application Notes

Optimal dilution of the POLD4 antibody should be determined by the researcher.

Immunogen

E.coli-derived human POLD4 recombinant protein (Position: M1-L107) was used as the immunogen for the POLD4

antibody.

Storage

After reconstitution, the POLD4 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.