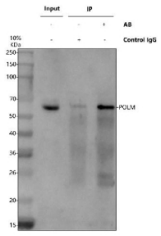
POLM Antibody / DNA polymerase mu (FY13084)

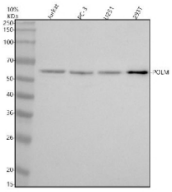
Catalog No.	Formulation	Size
FY13084	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
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	Q9NP87
Applications	Western Blot : 0.25-0.5ug/ml Immunoprecipitation : 2-4ug/500ug of lysate ELISA : 0.1-0.5ug/ml
Limitations	This POLM antibody is available for research use only.



Immunoprecipitating POLM in 293T whole cell lysate. Western blot analysis of POLM using anti-POLM antibody. Lane 1: 293T whole cell lysates (30ug), Lane 2: Rabbit control IgG instead of anti-POLM antibody in 293T whole cell lysate, Lane 3: anti-POLM antibody (2ug) + 293T whole cell lysate (500ug). After electrophoresis, proteins were transferred to a membrane. Then the membrane was incubated with rabbit anti-POLM antibody at a dilution of 0.5 ug/ml and probed with a mouse anti-rabbit IgG-HRP secondary antibody. The signal is developed using ECL Plus Western Blotting Substrate. A specific band was detected for POLM at approximately 55 kDa. The expected molecular weight of POLM is ~55 kDa.



Western blot analysis of POLM using anti-POLM antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human Jurkat whole cell lysates, Lane 2: human PC-3 whole cell lysates, Lane 3: human U251 whole cell lysates, Lane 4: human 293T 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-POLM 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 specific band was detected for POLM at approximately 55 kDa. The expected molecular weight of POLM is ~55 kDa.

Description

POLM antibody detects DNA polymerase mu, a specialized DNA polymerase involved in non-homologous end joining (NHEJ) and DNA repair. The UniProt recommended name is DNA polymerase mu (POLM). This enzyme belongs to the X family of DNA polymerases, functioning at sites of double-strand breaks to fill in short gaps and process damaged DNA ends during repair.

Functionally, POLM antibody identifies a 494-amino-acid nuclear enzyme that exhibits template-dependent and template-independent polymerase activities. POLM incorporates nucleotides opposite damaged or missing bases, ensuring ligation competency of DNA ends. Unlike high-fidelity polymerases, POLM lacks strong proofreading activity, allowing it to tolerate mismatched or gapped templates-a property critical for repair flexibility in NHEJ.

The POLM gene is located on chromosome 7p13 and is expressed in immune and proliferative tissues such as thymus and bone marrow. It plays a key role in V(D)J recombination and class switch recombination in lymphocytes by repairing programmed double-strand breaks. Its activity complements DNA polymerase lambda (POLL) in filling in short DNA overhangs during repair.

Pathologically, dysregulation of POLM contributes to genomic instability and may influence cancer development, immune function, and cellular aging. Overexpression can increase mutation rates, whereas deficiency impairs NHEJ efficiency. POLM's balance between flexibility and error rate is vital for maintaining genome integrity while allowing adaptability in immune diversification.

POLM antibody is validated for western blotting, immunofluorescence, and immunohistochemistry to detect DNA polymerase mu in nuclear extracts. NSJ Bioreagents provides POLM antibody reagents optimized for DNA repair, recombination, and genomic maintenance research.

Structurally, DNA polymerase mu contains an N-terminal BRCT domain mediating protein-protein interactions, followed by a catalytic polymerase domain with palm, fingers, and thumb subdomains typical of X-family enzymes. This antibody supports studies on POLM's mechanistic role in end joining, mutation repair, and adaptive immunity.

Application Notes

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

Immunogen

E.coli-derived human POLM recombinant protein (Position: E36-H481) was used as the immunogen for the POLM antibody.

Storage

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