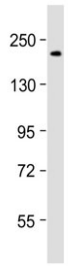
DNA Polymerase Alpha Rabbit Polyclonal Antibody / POLA1 C-Terminal Antibody (F54188)

Catalog No.	Formulation	Size
F54188-0.2ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.2 ml
F54188-0.05ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.05 ml

Bulk quote request

Species Reactivity	Mouse
Predicted Reactivity	Human
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity
UniProt	P09884
Applications	WB: 1:1000-1:2000
Limitations	This DNA Polymerase Alpha Rabbit Polyclonal Antibody / POLA1 C-Terminal Antibody is available for research use only.



DNA Polymerase Alpha Rabbit Polyclonal Antibody Western Blot Analysis of Mouse NIH3T3 Cell Lysate. Western blot analysis of mouse NIH3T3 cell lysate using POLA1 C-Terminal Antibody at a dilution of 1:1000. An immunoreactive band is detected at approximately 180 kDa, consistent with the commonly reported apparent molecular weight of the POLA1 catalytic subunit (p180), which has a calculated molecular weight of approximately 166 kDa.

Description

DNA Polymerase Alpha Rabbit Polyclonal Antibody / POLA1 C-Terminal Antibody targets the catalytic subunit of DNA polymerase alpha, a key enzyme responsible for initiating DNA synthesis during eukaryotic genome replication. Encoded by the POLA1 gene, the catalytic subunit is commonly known as p180 because of its apparent molecular weight of approximately 180 kDa. POLA1 is a component of the four-subunit DNA polymerase alpha-primase complex, which also contains the accessory subunit POLA2 and the primase subunits PRIM1 and PRIM2. This complex synthesizes the short

RNA-DNA primers required for replication initiation and lagging-strand DNA synthesis.

DNA polymerase alpha-primase acts at the beginning of DNA synthesis rather than carrying out extensive strand elongation. The primase subunits first synthesize a short RNA primer, which POLA1 extends by adding deoxyribonucleotides. The resulting RNA-DNA primer provides a starting point for the more processive DNA polymerases delta and epsilon. POLA1 lacks the intrinsic 3'-to-5' exonuclease proofreading activity found in these replicative polymerases, making its specialized role in primer synthesis particularly important. Coordination between polymerase alpha-primase and other replication proteins ensures that primer formation occurs at appropriate locations during genome duplication.

The POLA1 catalytic subunit contains conserved polymerase domains responsible for nucleotide binding and DNA synthesis. Its C-terminal region contributes to interactions within the polymerase alpha-primase complex, including association with the POLA2 accessory subunit. These interactions help maintain the structural organization and functional coordination of the enzyme complex. POLA1 is recruited to replication forks through interactions involving MCM10 and other replisome-associated proteins. During lagging-strand replication, repeated primer synthesis enables the formation of Okazaki fragments, which are subsequently extended and processed to generate continuous DNA strands.

Disruption of POLA1 function can impair DNA replication and contribute to replication stress, genomic instability, and abnormal cellular proliferation. Certain pathogenic POLA1 variants have been associated with X-linked reticulate pigmentary disorder, which includes defects in immune regulation and other physiological processes. POLA1 is also studied in relation to cell-cycle progression and the maintenance of genome integrity. The DNA Polymerase Alpha Rabbit Polyclonal Antibody supports research investigating the POLA1 catalytic subunit, its interactions with replication-associated proteins, and the molecular mechanisms that coordinate DNA synthesis during cell division.

For an alternative antibody targeting the N-terminal region of this DNA replication enzyme, see our POLA1 Antibody (F54189), validated by western blot using human cell lysate.

Application Notes

The stated application concentrations are suggested starting points. Titration of the DNA Polymerase Alpha Rabbit Polyclonal Antibody / POLA1 C-Terminal Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A portion of amino acids 1406-1439 from human POLA1 was used as the immunogen for the DNA Polymerase alpha antibody.

Storage

Aliquot the DNA Polymerase alpha antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Alternate Names

POLA1 antibody, DNA Polymerase Alpha antibody, DNA Polymerase Alpha Catalytic Subunit antibody, DNA Polymerase Alpha p180 antibody, DNA-directed DNA Polymerase Alpha antibody, DNA Polymerase Alpha Subunit A antibody, DNA Polymerase Alpha 1 antibody, POLA1 p180 antibody

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