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DNA Polymerase delta, catalytic subunit Polyclonal Antibody

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP54287

Product Information

Application	WB, IHC-P, IHC-F, IF, ICC, E
Primary Accession	P28340
Reactivity	Rat, Pig, Dog, Bovine
Host	Rabbit
Clonality	Polyclonal
Calculated MW	123631
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human DNA Polymerase delta, catalytic subunit
Epitope Specificity	751-850/1107
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Nucleus.
SIMILARITY	Belongs to the DNA polymerase type-B family.Contains 1 CysA-type zinc finger.
SUBUNIT	Heterotetramer composed of subunits of 125 kDa, 50 kDa, 66 kDa and 12 kDa. The 125 kDa subunit contains the polymerase active site and most likely the active site for the 3'-5' exonuclease activity. Interacts with WRNIP1. Interacts with POLD4 and PCNA.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	DNA replication, recombination and repair, all of which are necessary for genome stability, require the presence of exonucleases (1). In DNA replication, these enzymes are involved in the processing of Okazaki fragments, whereas in DNA repair, they function to excise damaged DNA fragments and correct recombinational mismatches (2). Exonucleases involved in these processes include DNA polymerases, including DNA pol ∂ and é. DNA pol ∂ consists of two subunits, p125 which interacts directly with the sliding DNA clamp protein PCNA, and p50 (3,4). DNA pol ∂ can be regulated by cell cycle proteins (5). DNA pol é is a multiple subunit enzyme, the catalytic subunit of which is encoded by the POL2 gene (6,7). The exact reactions catalyzed by DNA pol ∂ and é on leading and lagging strands have not yet been elucidated.

Additional Information

Gene ID	5424

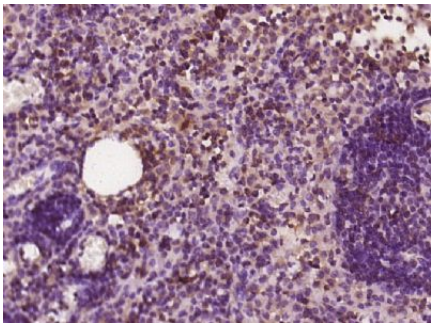
Other Names	DNA polymerase delta catalytic subunit, 2.7.7.7, 3'-5' exodeoxyribonuclease, 3.1.11.-, DNA polymerase subunit delta p125, POLD1 (HGNC:9175), POLD
Dilution	WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,ICC=1:100-500,IF=1:100-500,ELISA=1:5000-10000
Format	0.01M TBS(pH7.4) with 1% BSA, 0.09% (W/V) sodium azide and 50% Glyce
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	POLD1 (HGNC:9175)
Synonyms	POLD
Function	As the catalytic component of the trimeric (Pol-delta3 complex) and tetrameric DNA polymerase delta complexes (Pol-delta4 complex), plays a crucial role in high fidelity genome replication, including in lagging strand synthesis, and repair (PubMed:16510448, PubMed:19074196, PubMed:20334433, PubMed:24022480, PubMed:24035200, PubMed:31449058). Exhibits both DNA polymerase and 3'- to 5'- exonuclease activities (PubMed:16510448, PubMed:19074196, PubMed:20334433, PubMed:24022480, PubMed:24035200). Requires the presence of accessory proteins POLD2, POLD3 and POLD4 for full activity. Depending upon the absence (Pol-delta3) or the presence of POLD4 (Pol-delta4), displays differences in catalytic activity. Most notably, expresses higher proofreading activity in the context of Pol- delta3 compared with that of Pol-delta4 (PubMed:19074196, PubMed:20334433). Although both Pol-delta3 and Pol-delta4 process Okazaki fragments in vitro, Pol-delta3 may be better suited to fulfill this task, exhibiting near-absence of strand displacement activity compared to Pol-delta4 and stalling on encounter with the 5'-blocking oligonucleotides. Pol-delta3 idling process may avoid the formation of a gap, while maintaining a nick that can be readily ligated (PubMed:24035200). Along with DNA polymerase kappa, DNA polymerase delta carries out approximately half of nucleotide excision repair (NER) synthesis following UV irradiation (PubMed:20227374). Under conditions of DNA replication stress, in the presence of POLD3 and POLD4, may catalyze the repair of broken replication forks through break-induced replication (BIR) (PubMed:24310611). Involved in the translesion synthesis (TLS) of templates carrying O6-methylguanine, 8oxoG or abasic sites (PubMed:19074196, PubMed:24191025).
Cellular Location	Nucleus Note=Colocalizes with PCNA and POLD3 at S phase replication sites (PubMed:11595739). After UV irradiation, recruited to DNA damage sites within 2 hours, independently on the cell cycle phase, nor on PCNA ubiquitination. This recruitment requires POLD3, PCNA and RFC1- replication factor C complex (PubMed:20227374, PubMed:22801543)
Tissue Location	Widely expressed, with high levels of expression in heart and lung.

Images

Paraformaldehyde-fixed, paraffin embedded (mouse lymphoid); Antigen retrieval by boiling in sodium citrate



buffer (pH6.0) for 15min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat serum) at 37°C for 30min; Antibody incubation with (CDC2) Polyclonal Antibody, Unconjugated (AP54287) at 1:400 overnight at 4°C, followed by operating according to SP Kit(Rabbit) (sp-0023) instructionsand DAB staining.