

# POLD1 Antibody

Rabbit mAb

Catalog # AP92118

## Product Information

|                          |                                  |
|--------------------------|----------------------------------|
| <b>Application</b>       | WB, IHC, IF, FC, ICC, IHF        |
| <b>Primary Accession</b> | <a href="#">P28340</a>           |
| <b>Reactivity</b>        | Rat, Human, Mouse                |
| <b>Clonality</b>         | Monoclonal                       |
| <b>Other Names</b>       | CDC2; CRCS10; MDPL; POLD; POLD1; |
| <b>Isotype</b>           | Rabbit IgG                       |
| <b>Host</b>              | Rabbit                           |
| <b>Calculated MW</b>     | 123631                           |

## Additional Information

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Dilution</b>                     | WB 1:500~1:2000 IHC 1:50~1:200 ICC/IF 1:50~1:200 FC 1:100                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Purification</b>                 | Affinity-chromatography                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Immunogen</b>                    | A synthesized peptide derived from human POLD1                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Description</b>                  | Possesses two enzymatic activities: DNA synthesis (polymerase) and an exonucleolytic activity that degrades single stranded DNA in the 3'- to 5'-direction. Required with its accessory proteins (proliferating cell nuclear antigen (PCNA) and replication factor C (RFC) or activator 1) for leading strand synthesis. Also involved in completing Okazaki fragments initiated by the DNA polymerase alpha/primase complex. |
| <b>Storage Condition and Buffer</b> | Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.                                                                                                                                                                                                                                             |

## Protein Information

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|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Name</b>     | POLD1 ( <a href="#">HGNC:9175</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Synonyms</b> | POLD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Function</b> | 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: <a href="#">16510448</a> , PubMed: <a href="#">19074196</a> , PubMed: <a href="#">20334433</a> , PubMed: <a href="#">24022480</a> , PubMed: <a href="#">24035200</a> , PubMed: <a href="#">31449058</a> ). Exhibits both DNA polymerase and 3'- to 5'- exonuclease activities (PubMed: <a href="#">16510448</a> , PubMed: <a href="#">19074196</a> , PubMed: <a href="#">20334433</a> , PubMed: <a href="#">24022480</a> , PubMed: <a href="#">24035200</a> ). 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](#)).

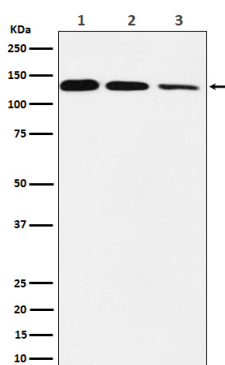
## Cellular Location

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 of 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



Western blot analysis of DNA Polymerase delta, catalytic subunit expression in (1) Jurkat cell lysate; (2) Raw264.7 cell lysate; (3) C6 cell lysate.

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