

POLD1 Antibody (Center) Blocking Peptide
Synthetic peptide
Catalog # BP2867c**Specification**

POLD1 Antibody (Center) Blocking Peptide - Product InformationPrimary Accession [P28340](#)**POLD1 Antibody (Center) Blocking Peptide - Additional Information****Gene ID** 5424**Other Names**

DNA polymerase delta catalytic subunit, DNA polymerase subunit delta p125, POLD1, POLD

Target/Specificity

The synthetic peptide sequence used to generate the antibody [AP2867c](/products/AP2867c) was selected from the Center region of human POLD1. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

Format

Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions

This product is for research use only. Not for use in diagnostic or therapeutic procedures.

POLD1 Antibody (Center) Blocking Peptide - 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. Exhibits both DNA polymerase and 3'- to 5'-exonuclease activities (PubMed: [16510448](http://www.uniprot.org/citations/16510448), PubMed: [19074196](http://www.uniprot.org/citations/19074196), PubMed: [20334433](http://www.uniprot.org/citations/20334433), PubMed: [24035200](http://www.uniprot.org/citations/24035200), PubMed: [24022480](http://www.uniprot.org/citations/24022480)). 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.

POLD1 Antibody (Center) Blocking Peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Blocking Peptides](#)

POLD1 Antibody (Center) Blocking Peptide - Images

POLD1 Antibody (Center) Blocking Peptide - Background

The DNA polymerase delta complex is involved in DNA replication and repair, and it consists of the proliferating cell nuclear antigen (PCNA), the multisubunit replication factor C, and the 4 subunit polymerase complex: POLD1, POLD2, POLD3, and POLD4.

POLD1 Antibody (Center) Blocking Peptide - References

Chung D.W., Zhang J.,Proc. Natl. Acad. Sci. U.S.A. 88:11197-11201(1991)Yang C.-L., Chang L.-S.Nucleic Acids Res. 20:735-745(1992) Li H., Xie B., Zhou Y., Rahmeh A.J. Biol. Chem. 281:14748-14755(2006)