

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

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**POLD1 Antibody (Center) Blocking Peptide - Product Information**Primary 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:<a href="http://www.uniprot.org/citations/19074196" target="\_blank">19074196</a>, PubMed:<a href="http://www.uniprot.org/citations/20334433" target="\_blank">20334433</a>). 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:<a href="http://www.uniprot.org/citations/24035200" target="\_blank">24035200</a>). Along with DNA polymerase kappa, DNA polymerase delta carries out approximately half of nucleotide excision repair (NER) synthesis following UV irradiation (PubMed:<a href="http://www.uniprot.org/citations/20227374" target="\_blank">20227374</a>). 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:<a href="http://www.uniprot.org/citations/24310611" target="\_blank">24310611</a>). Involved in the translesion synthesis (TLS) of templates carrying O6-methylguanine, 8oxoG or abasic sites (PubMed:<a href="http://www.uniprot.org/citations/19074196" target="\_blank">19074196</a>, PubMed:<a href="http://www.uniprot.org/citations/24191025" target="\_blank">24191025</a>).

#### **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)