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POLD3 Antibody (C-term) Blocking Peptide

Synthetic peptide
Catalog # BP16363b

Specification

POLD3 Antibody (C-term) Blocking Peptide - Product Information

Primary Accession Q15054

POLD3 Antibody (C-term) Blocking Peptide - Additional Information

Gene ID 10714

Other Names
DNA polymerase delta subunit 3, DNA polymerase delta subunit p66, POLD3, KIAA0039

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.

POLD3 Antibody (C-term) Blocking Peptide - Protein Information

Name POLD3

Synonyms KIAA0039

Function
Accessory component of both the DNA polymerase delta complex and the DNA polymerase zeta complex (PubMed:17317665, PubMed:22801543, PubMed:24449906). As a component of the trimeric and tetrameric DNA polymerase delta complexes (Pol-delta3 and Pol-delta4, respectively), plays a role in high fidelity genome replication, including in lagging strand synthesis, and repair. Required for optimal Pol-delta activity. Stabilizes the Pol-delta complex and plays a major role in Pol-delta stimulation by PCNA (PubMed:10219083, PubMed:10852724, PubMed:11595739, PubMed:16510448, PubMed:24035200). Pol-delta3 and Pol-delta4 are characterized by the absence or the presence of POLD4. They exhibit differences in catalytic activity. Most notably, Pol-delta3 shows higher proofreading activity than Pol-delta4 (PubMed:<a href="http://www.uniprot.org/citations/19074196"

target="_blank">19074196, PubMed:20334433). Although both Pol-delta3 and Pol-delta4 process Okazaki fragments in vitro, Pol-delta3 may also 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. In this context, POLD3, along with PCNA and RFC1-replication factor C complex, is required to recruit POLD1, the catalytic subunit of the polymerase delta complex, to DNA damage sites (PubMed:20227374). Under conditions of DNA replication stress, required for the repair of broken replication forks through break-induced replication (BIR) (PubMed:24310611). Involved in the translesion synthesis (TLS) of templates carrying O6-methylguanine or abasic sites performed by Pol- delta4, independently of DNA polymerase zeta (REV3L) or eta (POLH). Facilitates abasic site bypass by DNA polymerase delta by promoting extension from the nucleotide inserted opposite the lesion (PubMed:19074196, PubMed:25628356, PubMed:27185888). Also involved in TLS, as a component of the tetrameric DNA polymerase zeta complex. Along with POLD2, dramatically increases the efficiency and processivity of DNA synthesis of the DNA polymerase zeta complex compared to the minimal zeta complex, consisting of only REV3L and REV7 (PubMed:24449906).

Cellular Location
Cytoplasm {ECO:0000250|UniProtKB:Q9EQ28}. Nucleus. Note=Partially colocalizes with PCNA and POLD1 at S phase replication sites (PubMed:11595739). Recruited to DNA damage sites within 2 hours following UV irradiation (PubMed:20227374, PubMed:22801543).

POLD3 Antibody (C-term) Blocking Peptide - Protocols

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

- Blocking Peptides

POLD3 Antibody (C-term) Blocking Peptide - Images

POLD3 Antibody (C-term) Blocking Peptide - Background

The DNA polymerase delta complex is involved in DNAreplication and repair, and it consists of the proliferating cellnuclear antigen (PCNA; MIM 176740), the multisubunit replicationfactor C (see MIM 102579), and the 4 subunit polymerase complex:POLD1 (MIM 174761), POLD2 (MIM 600815), POLD3, and POLD4 (MIM611525) (Liu and Warbrick, 2006 [PubMed 16934752]).[supplied byOMIM].

POLD3 Antibody (C-term) Blocking Peptide - References

Michiels, S., et al. Carcinogenesis 30(5):763-768(2009)Baranovskiy, A.G., et al. Cell Cycle 7(19):3026-3036(2008)Baranovskiy, A.G., et al. Acta Crystallogr. Sect. F Struct. Biol. Cryst. Commun. 64 (PT 9), 822-824 (2008) :Lemmens, L., et al. Biochem. Biophys. Res. Commun. 367(2):264-270(2008)Sugiyama, N., et al. Mol. Cell Proteomics 6(6):1103-1109(2007)