

DNA pol θ rabbit pAb**Cat#: orb767413 (Manual)**

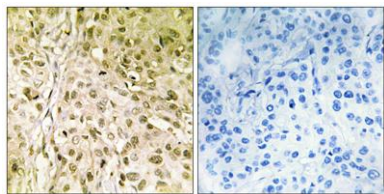
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Product Name	DNA pol θ rabbit pAb
Host species	Rabbit
Applications	IHC;IF;ELISA
Species Cross-Reactivity	Human;Rat;Mouse;
Recommended dilutions	Immunohistochemistry: 1/100 - 1/300. ELISA: 1/20000. Not yet tested in other applications.
Immunogen	The antiserum was produced against synthesized peptide derived from human POLQ. AA range:181-230
Specificity	DNA pol θ Polyclonal Antibody detects endogenous levels of DNA pol θ protein.
Formulation	Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.02% sodium azide..
Storage	Store at -20°C. Avoid repeated freeze-thaw cycles.
Protein Name	DNA polymerase theta
Gene Name	POLQ
Cellular localization	Nucleus . Chromosome . Enriched in chromatin in response to ultraviolet (UV) light (PubMed:25642963). Binds to chromatin during early G1 (PubMed:24989122). .
Purification	The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific immunogen.

Clonality	Polyclonal
Concentration	1 mg/ml
Observed band	
Human Gene ID	10721
Human Swiss-Prot Number	O75417
Alternative Names	POLQ; POLH; DNA polymerase theta; DNA polymerase eta

Background

POLQ (Polymerase (DNA) Theta) is a Protein Coding gene. Among its related pathways are Platinum Pathway, Pharmacokinetics/Pharmacodynamics and DNA Double-Strand Break Repair. GO annotations related to this gene include nucleic acid binding and damaged DNA binding. An important paralog of this gene is SNRNP200. NA polymerase that promotes microhomology-mediated end-joining (MMEJ), an alternative non-homologous end-joining (NHEJ) machinery triggered in response to double-strand breaks in DNA (PubMed: 25642963, PubMed: 25643323). MMEJ is an error-prone repair pathway that produces deletions of sequences from the strand being repaired and promotes genomic rearrangements, such as telomere fusions, some of them leading to cellular transformation (PubMed: 25642963, PubMed: 25643323). POLQ acts as an inhibitor of homology-recombination repair (HR) pathway by limiting RAD51 accumulation at resected ends (PubMed: 25642963). POLQ-mediated MMEJ may be required to promote the survival of cells with a compromised HR repair pathway, thereby preventing genomic havoc by resolving unrepaired lesions (By similarity). The polymerase acts by binding directly the 2 ends of resected double-strand breaks, allowing microhomologous sequences in the overhangs to form base pairs. It then extends each strand from the base-paired region using the opposing overhang as a template. Requires partially resected DNA containing 2 to 6 base pairs of microhomology to perform MMEJ (PubMed: 25643323). The polymerase activity is highly promiscuous: unlike most polymerases, promotes extension of ssDNA and partial ssDNA (pssDNA) substrates (PubMed: 18503084, PubMed: 21050863, PubMed: 22135286). Also exhibits low-fidelity DNA synthesis, translesion synthesis and lyase activity, and it is implicated in interstrand-cross-link repair, base excision repair and DNA end-joining (PubMed: 14576298, PubMed: 18503084, PubMed: 19188258, PubMed: 24648516). Involved in somatic hypermutation of immunoglobulin genes, a process that requires the activity of DNA polymerases to ultimately introduce mutations at both A/T and C/G base pairs (By similarity).



Immunohistochemistry analysis of paraffin-embedded human breast carcinoma, using DNA Polymerase theta Antibody. The picture on the right is blocked with the synthesized peptide.