

## Product datasheet for **TA372432**

### DNA Polymerase theta (POLQ) Rabbit Polyclonal Antibody

#### Product data:

|                       |  |
|-----------------------|--|
| Product Type:         | Primary Antibodies   |
| Applications:         | IHC  |
| Recommended Dilution: | IHC: 50-100<br>Positive control: Human colorectal cancer<br>Predicted cell location: Cytoplasm |
| Reactivity:           | Human, Mouse   |
| Host:                 | Rabbit   |
| Isotype:              | IgG  |
| Clonality:            | Polyclonal   |
| Immunogen:            | Synthetic peptide of human POLQ  |
| Formulation:          | pH7.4 PBS, 0.05% NaN <sub>3</sub> , 40% Glycerol   |
| Concentration:        | lot specific   |
| Purification:         | Antigen affinity purification  |
| Conjugation:          | Unconjugated   |
| Storage:              | Store at -20°C.  |
| Stability:            | 1 year   |
| Gene Name:            | polymerase (DNA) theta   |
| Database Link:        | <a href="#">Entrez Gene 10721 Human O75417</a>   |



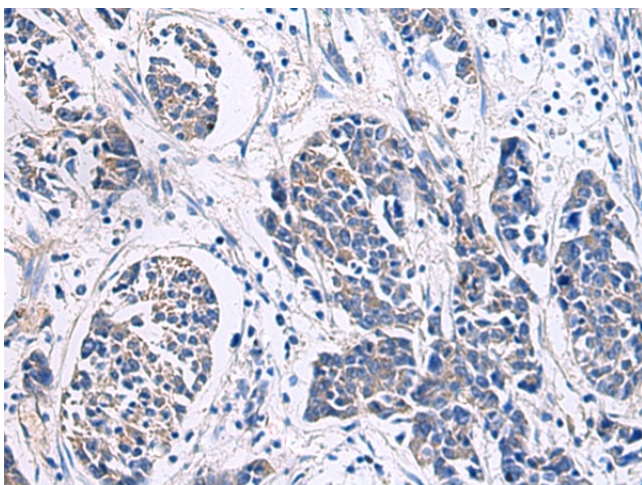
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**Background:**

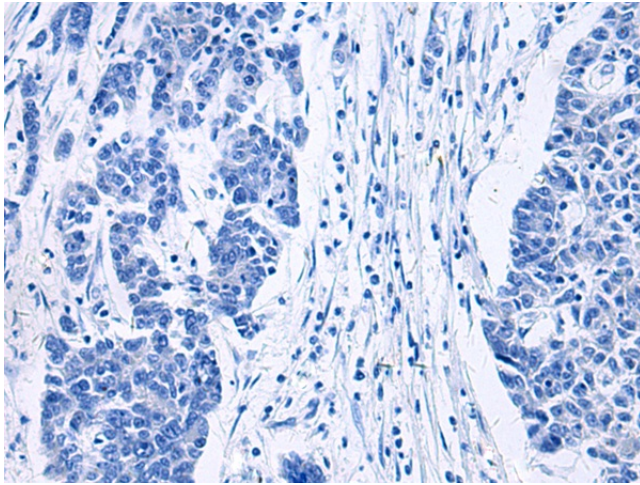
DNA polymerase that promotes microhomology-mediated end-joining (MMEJ), an alternative non-homologous end-joining (NHEJ) machinery triggered in response to double-strand breaks in DNA (PubMed:25642963, PubMed:25643323). MMEJ is an error-prone repair pathway that produces deletions of sequences from the 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).

**Synonyms:**

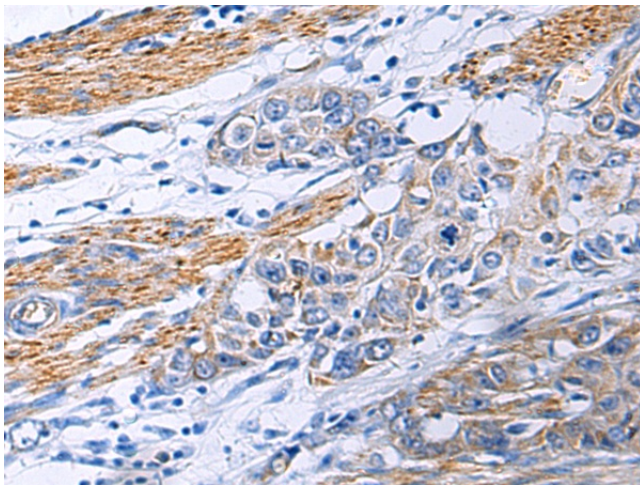
DKFZp781A0112; POLH; PRO0327

**Product images:**

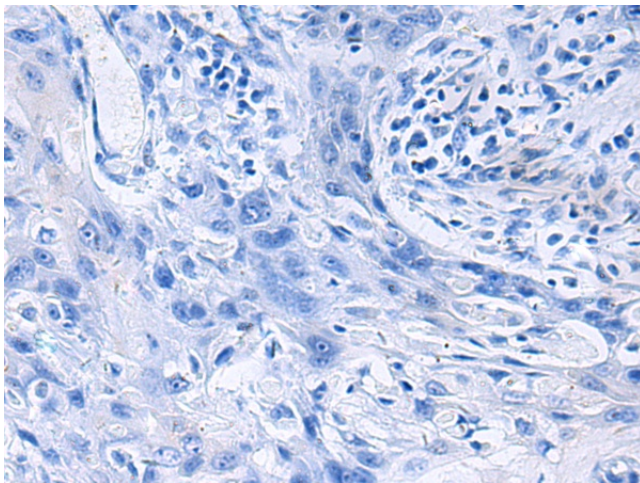
Immunohistochemistry of paraffin-embedded Human colorectal cancer using TA372432 (POLQ Antibody) at dilution 1/30 (Original magnification: ×200)



Immunohistochemistry of paraffin-embedded Human colorectal cancer using TA372432 (POLQ Antibody) at dilution 1/30, treated with synthetic peptide. (Original magnification:  $\times 200$ )



Immunohistochemistry of paraffin-embedded Human esophagus cancer using TA372432 (POLQ Antibody) at dilution 1/30 (Original magnification:  $\times 200$ )



Immunohistochemistry of paraffin-embedded Human esophagus cancer using TA372432 (POLQ Antibody) at dilution 1/30, treated with synthetic peptide. (Original magnification:  $\times 200$ )