OriGene Technologies, Inc.
9620 Medical Center Drive, Ste 200
Rockville, MD 20850, US
Phone: +1-888-267-4436
https://www.origene.com
techsupport@origene.com
EU: info-de@origene.com
CN: techsupport@origene.cn

Product datasheet for TA372432

DNA Polymerase theta (POLQ) Rabbit Polyclonal Antibody

Product data:

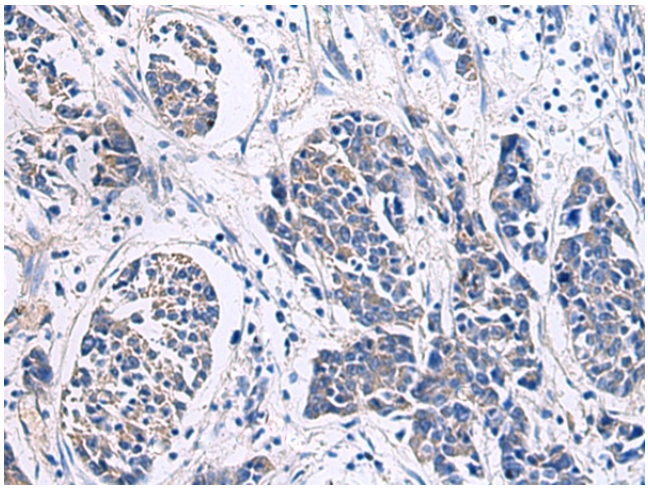
Product Type:	Primary Antibodies
Applications:	IHC
Recommended Dilution:	IHC: 50-100 Positive control: Human colorectal cancer Predicted cell location: Cytoplasm
Reactivity:	Human, Mouse
Host:	Rabbit
Isotype:	IgG
Clonality:	Polyclonal
Immunogen:	Synthetic peptide of human POLQ
Formulation:	pH7.4 PBS, 0.05% NaN3, 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:	Entrez Gene 10721 Human O75417

View online »

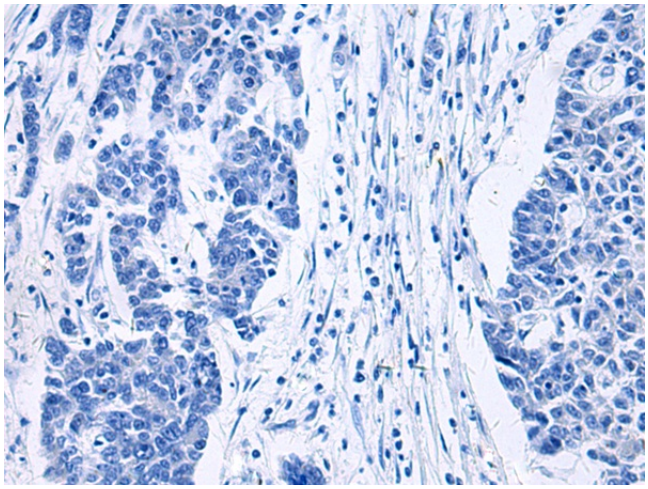
Background: DNA polymerase that promotes microhomology-mediated end-joining (MMEJ), an alternative non-homologous end-joining (NHEJ) machinery triggered in response to double-strand breaks in DNA (PubMed:25642963, PubMed:25643323). MMEJ is an error-prone repair pathway that produces deletions of sequences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

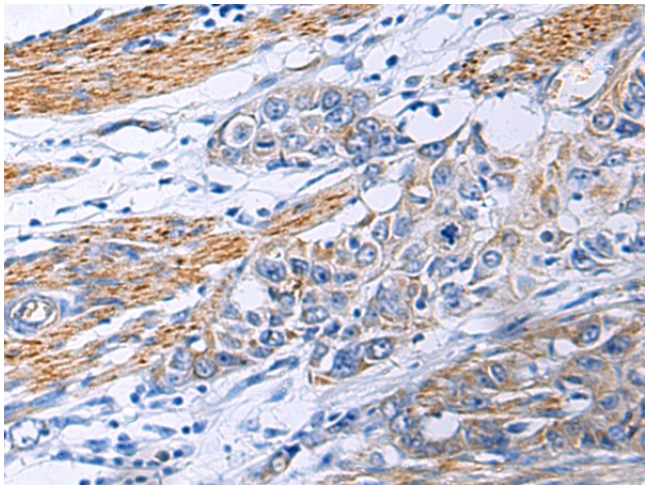
Product images:



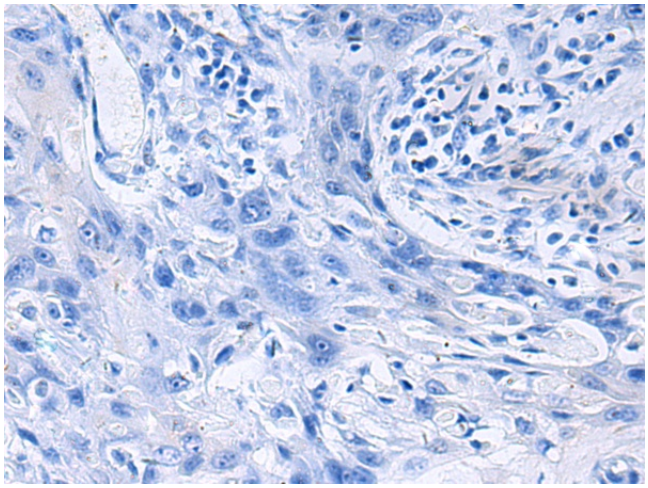
Immunohistochemistry of paraffin-embedded Human colorectal cancer using TA372432 (POLQ Antibody) at dilution 1/30 (Original magnification: ×200)



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



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



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