

DNA Ligase 4 Antibody

Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP51318

Product Information

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|-------------------|------------------------|
| Application | WB, ICC, IHC-P |
| Primary Accession | P49917 |
| Reactivity | Human |
| Host | Rabbit |
| Clonality | Polyclonal |
| Calculated MW | 103971 |

Additional Information

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|-------------|---|
| Gene ID | 3981 |
| Other Names | DNA ligase 4, DNA ligase IV, Polydeoxyribonucleotide synthase [ATP] 4, LIG4 |
| Dilution | WB~~1:1000 ICC~~N/A IHC-P~~N/A |
| Format | 0.01M PBS, pH 7.2, 0.09% (W/V) Sodium azide, Glycerol 50% |
| Storage | Store at -20 °C.Stable for 12 months from date of receipt |

Protein Information

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| Name | LIG4 {ECO:0000303 PubMed:16357942, ECO:0000312 HGNC:HGNC:6601} |
| Function | <p>DNA ligase involved in DNA non-homologous end joining (NHEJ); required for double-strand break (DSB) repair and V(D)J recombination (PubMed:12517771, PubMed:17290226, PubMed:23523427, PubMed:29980672, PubMed:33586762, PubMed:8798671, PubMed:9242410, PubMed:9809069). Catalyzes the NHEJ ligation step of the broken DNA during DSB repair by resealing the DNA breaks after the gap filling is completed (PubMed:12517771, PubMed:17290226, PubMed:9242410, PubMed:9809069). Joins single-strand breaks in a double-stranded polydeoxynucleotide in an ATP-dependent reaction (PubMed:12517771, PubMed:17290226, PubMed:9242410, PubMed:9809069). LIG4 is mechanistically flexible: it can ligate nicks as well as compatible DNA overhangs alone, while in the presence of XRCC4, it can ligate ends with 2-nucleotides (nt) microhomology and 1-nt gaps (PubMed:17290226). Forms a subcomplex with XRCC4; the LIG4-XRCC4 subcomplex is responsible for the NHEJ ligation step and XRCC4 enhances the joining activity of LIG4 (PubMed:9242410, PubMed:9809069). Binding of the LIG4-XRCC4 complex to DNA ends is dependent on the assembly of the DNA-dependent protein kinase complex DNA-PK to these DNA ends (PubMed:10854421). LIG4 regulates nuclear localization of XRCC4 (PubMed:24984242).</p> |

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| Cellular Location | Nucleus |
| Tissue Location | Testis, thymus, prostate and heart. |

Background

Efficiently joins single-strand breaks in a double- stranded polydeoxynucleotide in an ATP-dependent reaction. Involved in DNA non-homologous end joining (NHEJ) required for double-strand break repair and V(D)J recombination. The LIG4-XRCC4 complex is responsible for the NHEJ ligation step, and XRCC4 enhances the joining activity of LIG4. Binding of the LIG4-XRCC4 complex to DNA ends is dependent on the assembly of the DNA- dependent protein kinase complex DNA-PK to these DNA ends.

References

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