

# KD-Validated Anti-DNA ligase 4 Rabbit Monoclonal Antibody

Rabbit monoclonal antibody  
Catalog # AGI1246

## Product Information

|                   |                                                                                                                                                                                               |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Application       | WB, FC, ICC                                                                                                                                                                                   |
| Primary Accession | <a href="#">P49917</a>                                                                                                                                                                        |
| Reactivity        | Human                                                                                                                                                                                         |
| Clonality         | Monoclonal                                                                                                                                                                                    |
| Isotype           | Rabbit IgG                                                                                                                                                                                    |
| Clone Names       | 23GB 2515                                                                                                                                                                                     |
| Calculated MW     | 103971                                                                                                                                                                                        |
| Gene Name         | LIG4                                                                                                                                                                                          |
| Aliases           | LIG4; DNA Ligase 4; Polydeoxyribonucleotide Synthase [ATP] 4; DNA Ligase IV; Ligase IV, DNA, ATP-Dependent; Polynucleotide Ligase; DNA Repair Enzyme; DNA Joinase; EC 6.5.1.1; Sealase; LIG4S |
| Immunogen         | A synthesized peptide derived from human DNA Ligase IV                                                                                                                                        |

## Additional Information

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| Gene ID     | 3981                                                                                                                                                                                                                                                                                    |
| Other Names | DNA ligase 4, 6.5.1.1 {ECO:0000255   PROSITE-ProRule:PRU10135, ECO:0000269   PubMed:23523427, ECO:0000269   PubMed:29980672, ECO:0000269   PubMed:9809069}, DNA ligase IV, Polydeoxyribonucleotide synthase [ATP] 4, LIG4 {ECO:0000303   PubMed:16357942, ECO:0000312   HGNC:HGNC:6601} |

## Protein Information

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|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name     | LIG4 {ECO:0000303   PubMed:16357942, ECO:0000312   HGNC:HGNC:6601}                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Function | DNA ligase involved in DNA non-homologous end joining (NHEJ); required for double-strand break (DSB) repair and V(D)J recombination (PubMed: <a href="#">12517771</a> , PubMed: <a href="#">17290226</a> , PubMed: <a href="#">23523427</a> , PubMed: <a href="#">29980672</a> , PubMed: <a href="#">33586762</a> , PubMed: <a href="#">8798671</a> , PubMed: <a href="#">9242410</a> , PubMed: <a href="#">9809069</a> ). Catalyzes the NHEJ ligation step of the broken DNA during DSB repair by resealing the DNA breaks after the gap filling is completed (PubMed: <a href="#">12517771</a> , PubMed: <a href="#">17290226</a> , PubMed: <a href="#">9242410</a> , PubMed: <a href="#">9809069</a> ). Joins single-strand breaks in a double-stranded polydeoxynucleotide in an ATP-dependent reaction (PubMed: <a href="#">12517771</a> , PubMed: <a href="#">17290226</a> , PubMed: <a href="#">9242410</a> , PubMed: <a href="#">9809069</a> ). 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: <a href="#">17290226</a> ). 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](#)).

**Cellular Location**

Nucleus

**Tissue Location**

Testis, thymus, prostate and heart.

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