

## Product datasheet for **RC224561**

### DNA Ligase IV (LIG4) (NM\_001098268) Human Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	DNA Ligase IV (LIG4) (NM_001098268) Human Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	DNA Ligase IV
Synonyms:	LIG4S
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)



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**ORF Nucleotide Sequence:**

>RC224561 ORF sequence  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**CGGATCGCC**

ATGGCTGCCTCACAACCTTCACAACCTGTTGCATCTCACGTTCTTTTGCAGATTTGTGTTCAACTTTAG  
 AACGAATACAGAAAAGTAAAGGACGTGCAGAAAAATCAGACACTTCAGGGAATTTTATAGATTCTTGGAG  
 AAAATTTTCATGATGCTCTTCATAAGAACCACAAAGATGTCACAGACTCTTTTATCCAGCAATGAGACTA  
 ATTCTTCTCAGCTAGAAAGAGAGAGAATGGCCTATGGAATTAAGAAACTATGCTTGCTAAGCTTTATA  
 TTGAGTTGCTTAATTTACCTAGAGATGGAAAAGATGCCCTCAAACCTTTAAACTACAGAACCCTACTGG  
 AACTCATGGAGATGCTGGAGACTTTGCAATGATTGCATATTTTGTGTGAAGCCAAGATGTTTACAGAAA  
 GGAAGTTAAACCATACAGCAAGTAAACGACCTTTAGACTCAATTGCCAGCAATAATTCTGCTAAAAGAA  
 AAGACCTAATAAAAAAGAGCCTTCTTCACTTATAACTCAGAGTTCAGCACTTGAGCAAAAGTGGCTTAT  
 ACGGATGATCATAAAGGATTTAAAGCTTGGTGTAGTCAGCAAATATCTTTTCTGTTTTTCATAATGAT  
 GCTGCTGAGTTGCATAATGTCACACTACAGATCTGGAAAAAGTCTGTAGGCAACTGCATGATCCTTCTGTAG  
 GACTCAGTGATATTTCTATCACTTTATTTTCTGCATTTAAACCAATGCTAGCTGCTATTGCAGATATTGA  
 GCACATTGAGAAGGATATGAAACATCAGAGTTTCTACATAGAAACCAAGCTAGATGGTGAACGTATGCAA  
 ATGCACAAAAGTGGAGATGTATATAAACTTCTCTCGAAATGGATATAACTACACTGATCAGTTTGGTG  
 CTTCTCTACTGAAGTTCTCTTACCCCATTCATTATAATGCATTCAAAGCAGATATACAAATCTGTAT  
 TCTTGATGGTGAGATGATGGCCTATAATCCTAATACACAACTTTCATGCAAAAGGGAACAAAGTTTGTAT  
 ATAAAAGAATGGTAGAGATTCTGATCTGCAACTTGTATTGTGTTTTTGTGATTTGATGTTGTTAATA  
 ATAAAAGCTAGGGCATGAGACTCTGAGAAAGAGGTATGAGATTCTTAGTAGATTTTTTACACCAATTC  
 AGGTAGAATAGAAAATAGTGCAGAAAACACAAGCTCATACTAAGAATGAAGTAATTGATGCATTGAATGAA  
 GCAATAGATAAAAAGAGAAGGGGAATTATGGTAAAACAACCTCTATCCATCTACAAGCCAGACAAAAGAG  
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 TGGAGGATATTGGGGTAAAGGATCACGGGGTGAATGATGTCTCATTTTCTGTGTGCAGTAGCAGAGAAG  
 CCCCTCTGGTGAAGCCATCTGTGTTTCACTCTCTCTCGTGTGGGTCTGGCTGCACCATGAAAAG  
 AACTGTATGATCTGGTTTGAATTTGGCAAGTATTGGAAGCCTTTTCATAGAAAAGCTCCACCAAGCAG  
 CATTTTATGTGGAACAGAGAAGCCAGAAGTATACATTGAACCTTGTAAATCTGTCTATTGTTTCAAGTAAA  
 GCAGCAGAGATCGTACCCAGTATGTATAAAAGTGGCTGCACCTTGCCTTTCCACGAATTGAAAAGA  
 TAAGAGATGACAAGGAGTGGCATGAGTGCATGACCCTGGACGACCTAGAACAACTTAGGGGGAAGGCATC  
 TGGTAAGCTCGCATCTAACACCTTTATATAGGTGGTGTATGATGAACCACAAGAAAAAAGCGGAAAGCT  
 GCCCAAAGATGAAGAAAGTTATTGGAATTATTGAGCACTTAAAAGCACCTAACCTTACTAACGTTAAACA  
 AAATTTCTAATATATTGGAAGATGTAGAGTTTGTGTTATGAGTGGAAACAGATAGCCAGCCAAAGCCTGA  
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 TTGAACCAACTGAAGGAAGTATTCTCAGGAATTAATAAATTAACGAGCAGACTCCTGAAGAAATGGCTT  
 CTCTGATTGCTGATTTAGAATATCGGTATTCTGGGATTGCTCTCTCTCAGTATGTTTTCAGGCCACAC  
 CGTTTTATTGGACTCGTATGCTGTTAATAATGACCTGAGTACAAAAATGAGGGGACAAGGTTAGCTATT  
 AAAGCCTTGGAGCTTCGGTTTCATGGAGCAAAAGTAGTTTCTGTTTAGCTGAGGGAGTGTCTCATGTAA  
 TAATTGGGAAGATCATAGTCGTGTTGCAGATTTAAAGCTTTTGAAGAAGCTTTAAGAGAAAGTTTAA  
 AATCCTAAAAGAAAGTTGGGTAAGTCAATAGACAAGTGTGAATTACAAGAAGAAAACCAAGTATTG  
 ATT

**ACGCGT**ACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT  
 ACAAGGATGACGACGATAAAGTTTAA

**Protein Sequence:** >RC224561 protein sequence  
 Red=Cloning site Green=Tags(s)

MAASQTSQTVASHVVPFADLCSTLERIQKSKGRAEKIRHFREFLDLSDWRKFHDALHKNHKDVTDSFYPMRL  
 ILPQLERERMAYGIKETMLAKLYIELLNLPRDGKDALKLLNRYRPTGTGHDAGDFAMIAYFVLKPRCLQK  
 GSLTIQQVNDLLDSIASNNSAKRKDLIKKSLQLITQSSALEQKWLIRMIKDLKLGVSQQTIFSVFHND  
 AAELHNVTDLLEKVCRLHDPVGLSDISITLFSAFKPMMAAIADIEHIEKDMKHQSFYIETKLDGERMQ  
 MHKDGDVYKYFSRNGYNYTDQFGASPTGSLTPFIHNAFKADIQICILDGEMMAYNPNTQTFMQKGTKFD  
 IKRMVEDSDLQTCYCVFVLMVNNKKGHETLRKRYEILSSIFTPIPRGRIEIVQKTAHTKNEVIDALNE  
 AIDKREEGIMVKQPLSIYKPKRGEGLKIKPEYVSGLMDELILIVGGYWGKSRGMMSHFLCAVAEK  
 PPPGKPSVFHTLSRVSGCTMKELYDLGLKLAKYWKPFHRKAPPSSILCGTEKPEVYIEPCNSVIVQIK  
 AAEIVPSDMYKTGCTLRFPRIEKIRDDKEWHECMTLDDLEQLRGKASGLASKHLYIGGDDEPQEKKRKA  
 APKMKKVIIGIIEHLKAPNL TNVNKISNIFEDVEFCVMSGTDSQPKPDLENRIAEFGGYIVQNPGPDYCV  
 IAGSENIRVKNIIILSNKHVVKPAWLLCEFKTKSFVPWQPRFMIHMPSTKEHFAREYDCYGDSYFIDTD  
 LNQLKEVFSGIKNSNEQTPEEMASLIADLEYRYSWDCSPLSMFRRHVYLDVSYAVINDLSTKNEGTRLAI  
 KALELRFHGAKVVSCLAEGVSHVIIGEDHSRVADFKAFRRRTFKRKFILKESWVTD SIDKCELQEENQYL  
 I

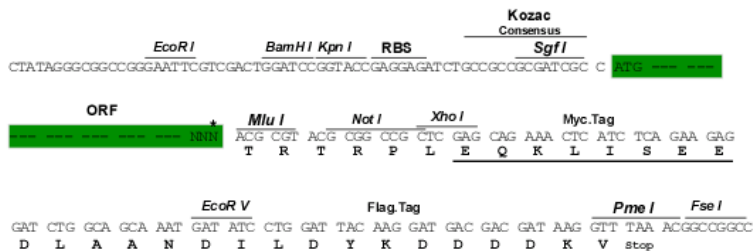
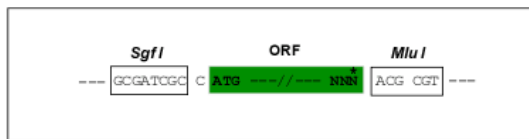
TRTRPLEQKLISEEDLAANDILDYKDDDDKV

**Chromatograms:** [https://cdn.origene.com/chromatograms/mk6318\\_e04.zip](https://cdn.origene.com/chromatograms/mk6318_e04.zip)

**Restriction Sites:** SgfI-MluI

**Cloning Scheme:**

Cloning sites used for ORF Shuttling:



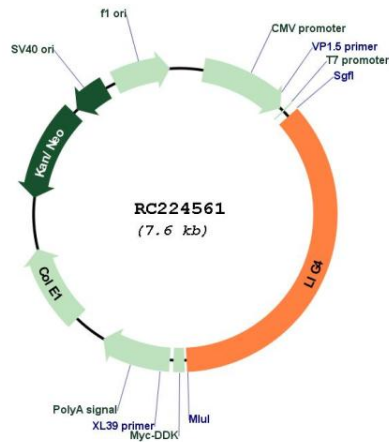
\* The last codon before the Stop codon of the ORF

**ACCN:** NM\_001098268

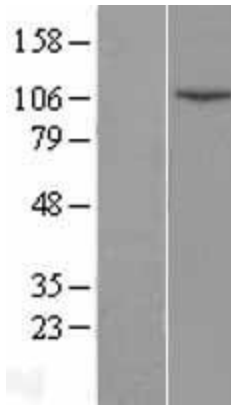
**ORF Size:** 2733 bp

<b>OTI Disclaimer:</b>	The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. <a href="#">More info</a>
<b>OTI Annotation:</b>	This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.
<b>Components:</b>	The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).
<b>Reconstitution Method:</b>	<ol style="list-style-type: none"><li>1. Centrifuge at 5,000xg for 5min.</li><li>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.</li><li>3. Close the tube and incubate for 10 minutes at room temperature.</li><li>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.</li><li>5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.</li></ol>
<b>RefSeq:</b>	<a href="#">NM_001098268.2</a>
<b>RefSeq Size:</b>	4077 bp
<b>RefSeq ORF:</b>	2736 bp
<b>Locus ID:</b>	3981
<b>UniProt ID:</b>	<a href="#">P49917</a>
<b>Cytogenetics:</b>	13q33.3
<b>Protein Families:</b>	Druggable Genome
<b>Protein Pathways:</b>	Non-homologous end-joining
<b>MW:</b>	104 kDa
<b>Gene Summary:</b>	The protein encoded by this gene is a DNA ligase that joins single-strand breaks in a double-stranded polydeoxynucleotide in an ATP-dependent reaction. This protein is essential for V(D)J recombination and DNA double-strand break (DSB) repair through nonhomologous end joining (NHEJ). This protein forms a complex with the X-ray repair cross complementing protein 4 (XRCC4), and further interacts with the DNA-dependent protein kinase (DNA-PK). Both XRCC4 and DNA-PK are known to be required for NHEJ. The crystal structure of the complex formed by this protein and XRCC4 has been resolved. Defects in this gene are the cause of LIG4 syndrome. Alternatively spliced transcript variants encoding the same protein have been observed. [provided by RefSeq, Jul 2008]

Product images:



Circular map for RC224561



Western blot validation of overexpression lysate (Cat# [LY420562]) using anti-DDK antibody (Cat# [TA50011-100]). Left: Cell lysates from untransfected HEK293T cells; Right: Cell lysates from HEK293T cells transfected with RC224561 using transfection reagent MegaTran 2.0 (Cat# [TT210002]).