

Product datasheet for **RC220071**

DNA Ligase IV (LIG4) (NM_206937) Human Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	DNA Ligase IV (LIG4) (NM_206937) 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:

>RC220071 ORF sequence
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
 GCC**CGCATCGCC**

ATGGCTGCCTCACAACCTTCACAACCTGTTGCATCTCACGTTCTTTTGCAGATTTGTGTTCAACTTTAG
 AACGAATACAGAAAAGTAAAGGACGTGCAGAAAAATCAGACACTTCAGGGAATTTTATAGATTCTTGGAG
 AAAATTTTCATGATGCTCTTCATAAGAACCACAAAAGATGTCACAGACTCTTTTATCCAGCAATGAGACTA
 ATTCTTCTCAGCTAGAAAGAGAGAGAATGGCCTATGGAATTAAGAAAATATGCTTGTAAAGCTTTATA
 TTGAGTTGCTTAATTTACCTAGAGATGGAAAAGATGCCCTCAAACCTTTAAACTACAGAACCCTACTGG
 AACTCATGGAGATGCTGGAGACTTTGCAATGATTGCATATTTTGTGTTGAAGCCAAGATGTTTACAGAAA
 GGAAGTTAAACCATACAGCAAGTAAACGACCTTTAGACTCAATTGCCAGCAATAATTCTGCTAAAAGAA
 AAGACCTAATAAAAAAGAGCCTTCTTCACTTATAACTCAGAGTTCAGCACTTGAGCAAAAGTGGCTTAT
 ACGGATGATCATAAAGGATTTAAAGCTTGGTGTAGTCAGCAAATATCTTTTCTGTTTTTCATAATGAT
 GCTGCTGAGTTGCATAATGTCACACTACAGATCTGGAAAAAGTCTGTAGGCAACTGCATGATCCTTCTGTAG
 GACTCAGTGATATTTCTATCACTTTATTTTCTGCATTTAAACCAATGCTAGCTGCTATTGCAGATATTGA
 GCACATTGAGAAGGATATGAAACATCAGAGTTTCTACATAGAAAACCAAGCTAGATGGTGAACGTATGCAA
 ATGCACAAAAGTGGAGATGTATATAAACTTCTCTCGAAATGGATATAACTACACTGATCAGTTTGGTG
 CTTCTCTACTGAAGTTCTCTTACCCATTTCATTATAATGCATTCAAAGCAGATATACAAATCTGTAT
 TCTTGATGGTGAGATGATGGCCTATAATCCTAATACACAAACTTTCATGCAAAAGGGAACAAAGTTTGT
 ATTAAGAAGTGGTAGAGATTCTGATCTGCAACTTGTATTGTGTTTTTGTGATTTGATGTTGTTAATA
 ATAAAAGCTAGGGCATGAGACTCTGAGAAAGAGGTATGAGATTCTTAGTAGATTTTTTACACCAATTC
 AGGTAGAAATAGAAATAGTGCAGAAAACACAAGCTCATACTAAGAATGAAGTAATTGATGCATTGAATGAA
 GCAATAGATAAAAAGAGAAGAGGGAATTATGGTAAAACAACCTCTATCCATCTACAAGCCAGACAAAAGAG
 GTGAAGGGTGGTTAAAAATTAACCAGAGTATGTCAGTGGACTAATGGATGAATTGGACATTTTAATTGT
 TGGAGGATATTGGGGTAAAGGATCACGGGGTGAATGATGTCTCATTTTCTGTGTGCAGTAGCAGAGAAG
 CCCCCTCTGGTGAAGCCATCTGTGTTTCACTCTCTCTCGTGTGGGTCTGGCTGCACCATGAAAAG
 AACTGTATGATCTGGGTTTGAATTTGGCAAGTATTGGAAGCCTTTTCATAGAAAAGCTCCACCAAGCAG
 CATTTTATGTGGAACAGAGAAGCCAGAAGTATACATTGAACCTTGTAAATCTGTCTATTGTTGATTTAA
 GCAGCAGAGATCGTACCCAGTATGTATAAAAGTGGCTGCACCTTGCCTTTCCACGAATTGAAAAGA
 TAAGAGATGACAAGGAGTGGCATGAGTGCATGACCCTGGACGACCTAGAACAACTTAGGGGGAAGGCATC
 TGGTAAGCTCGCATCTAACACCTTTATATAGGTGGTGTATGATGAACCACAAGAAAAAAGCGGAAAGCT
 GCCCAAAGATGAAGAAAGTTATTGGAATTATTGAGCACTTAAAAGCACCTAACCTTACTAACGTTAACA
 AAATTTCTAATATATTGGAAGTGTAGAGTTTGTGTTATGAGTGGAAACAGATAGCCAGCCAAAGCCTGA
 CCTGGAGAACAGAATTGCAGAAATTTGGTGGTATATAGTACAAAATCCAGGCCAGACACGTAAGTGTGA
 ATTGACAGGTCTGAGAACATCAGAGTAAAAACATAATTTGTCAAATAAACATGATGTTGTCAAGCCTG
 CATGGCTTTTGAATGTTTTAAGACAAAAGCTTTGTACCATGGCAGCCTCGCTTTATGATTGATGATG
 CCCATCAACCAAAAGAACATTTTGCCCGTGAATATGATTGCTATGGTGTAGTTATTTTATTGATACAGAG
 TTGAACCAACTGAAGGAAGTATTCTCAGGAATTAATAAATTAACGAGCAGACTCCTGAAGAAATGGCTT
 CTCTGATTGCTGATTTAGAATATCGGTATTCTGGGATTGCTCTCTCTCAGTATGTTTTCGACGCCACAC
 CGTTTTATTGGACTCGTATGCTGTTATTAATGACCTGAGTACAAAAATGAGGGGACAAGGTTAGCTATT
 AAAGCCTTGGAGCTTCGGTTTCATGGAGCAAAAGTAGTTTCTGTTTAGCTGAGGGAGTGTCTCATGTAA
 TAATTGGGAAGATCATAGTCGTGTTGCAGATTTAAAGCTTTTGAAGAAGCTTTAAGAGAAAGTTTAA
 AATCCTAAAAGAAAGTTGGGTAAGTCAATAGACAAGTGTGAATTACAAGAAGAAAACAGTATTTG
 ATT

ACGCGTACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT
 ACAAGGATGACGACGATAAAGTTTAA

Protein Sequence: >RC220071 protein sequence
 Red=Cloning site Green=Tags(s)

MAASQTSQTVASHVVPFADLCSTLERIQKSKGRAEKIRHFREFLDSWRKFHDALHKNHKDVTDSFYPMRL
 ILPQLERERMAYGIKETMLAKLYIELLNLPDGDALKLLNRYRPTGTHGDAGDFAMIAYFVLKPRCLQK
 GSLTIQQVNDLLDSIASNNSAKRKDLIKKSLQLITQSSALEQKWLIRMIKDLKLGVSQQTIFSVFHND
 AAELHNVTDLLEKVCRLHDPVGLSDISITLFSAFKPMMAAIADIEHIEKDMKHQSFYIETKLDGERMQ
 MHKDGDVYKYFSRNGYNYTDQFGASPTGSLTPFIHNAFKADIQICILDGEMMAYNPNTQTFMQKGTKFD
 IKRMVEDSDLQTCYCVFVLMVNNKKGHETLRKRYEILSSIFTPIPGRIEIVQKTAHTKNEVIDALNE
 AIDKREEGIMVKQPLSIYKPKRGEGLKIKPEYVYVGLMDELILIVGGYWGKSRGMMSHFLCAVAEK
 PPPGKPSVFHTLSRVSGCTMKELYDLGLKLAKYWKPFHRKAPPSSILCGTEKPEVYIEPCNSVIVQIK
 AAEIVPSDMYKTGCTLRFPRIEKIRDDKEWHECMTLDDLEQLRGKASGLASKHLYIGGDDEPQEKKRKA
 APKMKKVIIGIIEHLKAPNL TNVKNISNIFEDVEFCVMSGTDSQPKPDLENRIA EFGGYIVQNPDPDTCV
 IAGSENIRVKNII LSNKHVVKPAWLL ECFKTKSFVPWQPRFMIHMPSTKEHF AREYDCYGDSYF IDTD
 LNQLKEVFSGIKNSNEQTPEEMASLIADLEYRYSWDCSPLSMFRRHTVYLD SYAVINDLSTKNEGTRLAI
 KALELRFHGAKVVSCLAEGVSHVIIGEDHSRVADFKAFRRRTFKRKFILKESWVTD SIDKCELQEENQYL
 I

TRTRPLEQKLISEEDLAANDILDYKDDDDKV

Chromatograms: https://cdn.origene.com/chromatograms/mk6318_e04.zip

Restriction Sites: SgfI-MluI

Cloning Scheme:

Cloning sites used for ORF Shuttling:



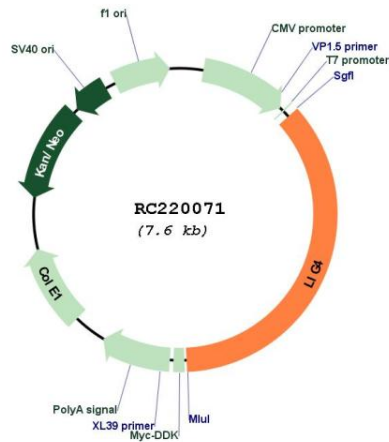
* The last codon before the Stop codon of the ORF

ACCN: NM_206937

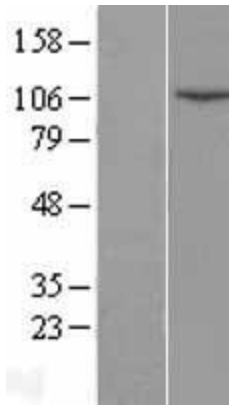
ORF Size: 2733 bp

OTI Disclaimer:	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. More info
OTI Annotation:	This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.
Components:	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).
Reconstitution Method:	<ol style="list-style-type: none">1. Centrifuge at 5,000xg for 5min.2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.3. Close the tube and incubate for 10 minutes at room temperature.4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.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.
RefSeq:	NM_206937.2
RefSeq Size:	3994 bp
RefSeq ORF:	2736 bp
Locus ID:	3981
UniProt ID:	P49917
Cytogenetics:	13q33.3
Protein Families:	Druggable Genome
Protein Pathways:	Non-homologous end-joining
MW:	104 kDa
Gene Summary:	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 RC220071



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]).