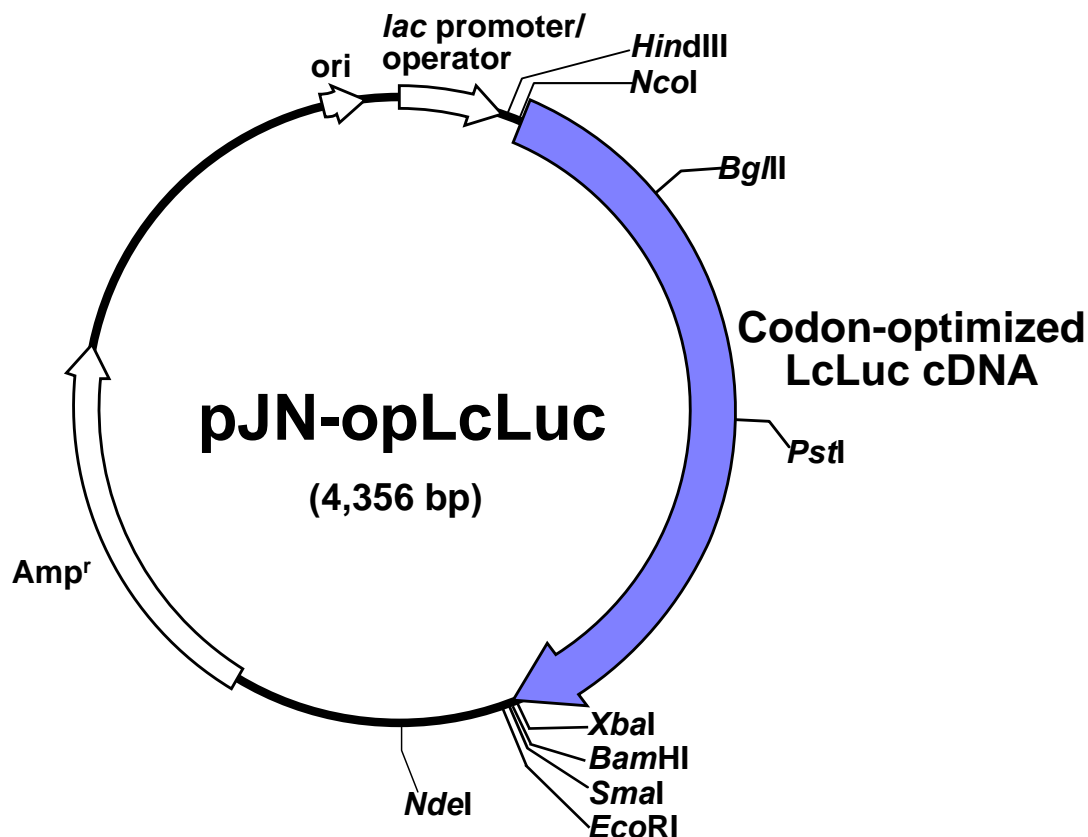


<b>pJN-opLcLuc</b>	
<b>Cat. No.</b>	P-004
<b>Gene/Insert name:</b>	Codon-optimized firefly luciferase of <i>Luciola cruciata</i> (opLcLuc)
<b>Vector backbone:</b>	pUC-JN
<b>Vector type:</b>	<i>E. coli</i>
<b>Backbone size w/o insert (bp):</b>	2,680
<b>Bacterial resistance:</b>	Ampicillin
<b>Growth strain:</b>	JM83
<b>Growth temperature (°C):</b>	37
<b>Growth instructions:</b>	pJN-opLcLuc is resistant to ampicillin (50 µg/mL)
<b>High or low copy:</b>	High copy
<b>Vector map:</b>	<a href="#">pJN-opLcLuc</a>
<b>Coding sequence:</b>	<a href="#">Nucleotide sequence &amp; Amino acid sequence</a>
<b>Plasmid sequence:</b>	<a href="#">pJN-opLcLuc (4,356 bp)</a>
<b>Restriction enzyme list:</b>	<a href="#">Restriction enzyme sites of pJN-opLcLuc</a>
<b>GenBank Accession No.:</b>	<a href="#">LC006265</a>
<b>Size:</b>	10 µg
<b>Terms and Licenses:</b>	MTA
<b>Laboratory Reagent For Research Use Only</b>	

# Firefly Luciferase (*Luciola cruciata*), LcLuc

Cat. No. P-004

**Name:** pJN-opLcLuc  
**Insert:** Codon-optimized firefly luciferase of *Luciola cruciata* (LcLuc) cDNA  
**Vector:** pUC-JN (pUC9 derivative)



• DNA fragment:

M
E
N
M
---
A
K
M
\*\*\*  
aagctt.....cacc ATG-GAG-AAC-ATG-.....-GCC-AAG-ATG-TAA tctaga  
*HindIII* (Kozak) *XbaI*

• Feature for pJN-opLcLuc:

Residue	Source	Comments
1-245	1-245	pUC-JN backbone (pUC9 derivative)
1-230	1-230	<i>lac</i> promoter/operator
275-1,918	1-1,644	Codon-optimized LcLuc ORF
1,922-4,356	294-2,728	pUC-JN backbone (pUC9 derivative)
4,183	2,555	ori: Origin of replication
2,555-3,415	927-1,787	Amp <sup>r</sup> : Ampicillin resistance gene

Ref.

- 1) LcLuc amino acid seq. & cDNA seq.: GenBank Accession No. M26194  
Masuda, T. *et al. Gene* (1989) 77: 265-270.
- 2) Codon-optimized LcLuc DNA seq.: GenBank Accession No. LC006265  
Inouye, S. *et al. Protein Expr. Purif.* (2015) 109: 47-54

**Gene coding region (ORF: Codon-optimized LcLuc)**

**Nucleotide sequence**

AAGCCTTGGCAATCCGGTACTGTTGGTAAAGCCACC**ATGGAGA**ACATGGAGAACGACGAGAACATCGTCGT  
CGGCCCCAAGCCCTTTTACCCCATCGAGGAGGGCAGCGCCGGCACCCAGCTGAGGAAGTACATGGAGAGG  
TACGCCAAGCTGGGCGCCATCGCCTTTACCAACGCCGTACCCGGCGTGGACTACAGCTACGCCGAGTACC  
TGGAGAAGAGCTGCTGCCTGGGCAAGGCCCTCCAGAACTACGGCCTGGTCTGTGGACGGCAGGATCGCCCT  
GTGCAGCGAGAACTGCGAGGAGTTTTTTATCCCCGTATCGCCGGCCTGTTTTATCGGGCTCGGCCTCGCC  
CCCACCAACGAGATCTACACCTGAGGGAGCTGGTCCACAGCCTGGGCATCAGCAAGCCACCATCGTCT  
TTAGCAGCAAGAAGGGCCTGGACAAGGTATCACCGTCCAGAAGACCGTCACCACCATCAAGACCATCGT  
CATCCTGGACAGCAAGGTGGACTACAGGGGCTACCAGTGCCTGGACACCTTTATCAAGAGGAACACCCCC  
CCCGGCTTTTACAGCCAGCAGCTTTAAGACCGTTCGAGGTGGACAGGAAGGAGCAGGTTCGCCCTGATCATGA  
ACAGCAGCGGCAGCACCGCCTGCCCAAGGGCGTCCAGCTGACCCACGAGAACACCGTCACCAGGTTTAG  
CCACGCCAGGGACCCCATCTACGGCAACCAGGTTCAGCCCCGGCACCGCCGTCTGACCGTTCGTCCCCTTT  
CACCACGGCTTTGGCATGTTTACCACCTGGGCTACCTGATCTGCGGCTTTAGGGTCGTTCATGCTGACCA  
AGTTTTGACGAGGAGACCTTTCTGAAGACCCCTGCAGGACTACAAGTGCACCAGCGTCATCCTGGTCCCCAC  
CCTGTTTGCCATCCTGAACAAGAGCGAGCTGCTGAACAAGTACGACCTGAGCAACCTGGTTCGAGATCGCC  
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GGCAGGGCTACGGCCTGACCGAGACCACAGCGCCATCATCATACCCCCGAGGGCGACGACAAGCCCGG  
CGCAGCGGCAAGGTTCGTCCCCTGTTTAAAGGCAAGGTTCATCGACCTGGACACCAAGAAGAGCCTGGGC  
CCCAACAGGAGGGGCGAGGTCTGCGTCAAGGGCCCCATGCTGATGAAGGGCTACGTCAACAACCCCGAGG  
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CTGGAGAGCGTCTGCTCCAGCACCCAGCATCTTTGACGCCGGCGTTCGCCGGCTCCCCGACCCCGTTCG  
CCGGCGAGCTGCCCGGCGCCGTCTGCTCCTGGAGAGCGGCAAGAACATGACCGAGAAGGAGGTTCATGGA  
CTACGTGCCAGCCAGGTTCAGCAACGCCAAGAGGCTGAGGGGCGGCGTTCAGGTTTGTGGACGAGGTCCCC  
AAGGGCCTGACCGCAAGATCGACGGCAGGGCCATCAGGGAGATCCTGAAGAAGCCCGTCCCAAGATGT  
**AA**TCTAGA

**Amino acid sequence**

AWQSGTVGKAT**MEN**MENDENLVVGPKPFYPIEEGSAGTQLRKYMERYAKLGAI<sup>1</sup>AFTNAVTVGDYSYAEYL  
EKSCCLGKALQNYGLVVDGRIALCSENCEEFFIPVIAGLFIGVGVAPTNEIYTLRELVHSLGISKPTIVF  
SSKKGLDKVITVQKTVTTIKTIVILDSKVDYRQYQCLDTFIKRNTPPGFQASSFKTVEVDRKEQVALIMN  
SSGSTGLPKGVQLTHE<sup>2</sup>NTVTRF<sup>3</sup>SHARDPIYGNQVSPGTAVLTVVPPFHHGFGMFTTLGYLICGFRVVMLTK  
FDEETF<sup>4</sup>LKTLQDYKCTSVILVPTLFAILNKSELLNKYDLSNLVEIASGGAPLSKEVGEAVARRFNLPGVR  
QGYGLTETTS<sup>5</sup>AIITPEGDDKPGASGKVVPLFKAKVIDLDTKKSLGPNRRGEVCKVGPMLMKGYVNNPEA  
TKELIDEEGWLHTGDIGYDEEKHFFIVDRLKSLIKYKGYQVPPAELESVLLQHPSIFDAGVAGVDPVA  
GELPGAVVVLES<sup>6</sup>GKNMTEKEVMDYVASQVSNAKRLRGGVRFVDEVPKGLTGKIDGRAIREILKKPVAKM\*  
SR

**pJN-opLcLuc (4,356 bp)**

GCGCCCAATACGCAAACCGCCTCTCCCCGCGCGTTGGCCGATTCATTAATGCAGCTGGCAGCAGAGTTT  
CCCGACTGAAAGCGGGCAGTGAGCGCAACGCAATTAATGTGAGTTAGCTCACTCATTAGGCACCCCAGG  
CTTTACACTTTATGCTTCCGGCTCGTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACAGGAAA  
CAGCTATGACCATGATTACGCCAAGCTGCAAGCTTGGCAATCCGGTACTGTTGGTAAAGCCACC**ATGGAG**  
AACATGGAGAACGACGAGAACATCGTCGTGCGCCCCAAGCCCTTTTACCCCATCGAGGAGGGCAGCGCCG  
GCACCCAGCTGAGGAAGTACATGGAGAGGTACGCCAAGCTGGGCGCCATCGCCTTTACCAACGCCCTCAC  
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CAGGAAGGAGCAGGTGCGCCCTGATCATGAACAGCAGCGGCAGCACCGGCCGTTGCCAAGGGCGTCCAGCTG  
ACCCACGAGAACACCGTCAACAGGTTTAGCCACGCCAGGGACCCCATCTACGGCAACCAGGTGAGCCCCG  
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**TTTTTTGCGGCATTTTGCCTTCCCTGTTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAG**  
**ATCAGTTGGGTGCACGAGTGGGTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTTCG**  
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**GACCGCGGGAAGCAACTCGGTCCCGCATACACTATTCTCAGAATGACTTGGTTGACTTACCATCACCAG**  
**TCACAGAAAAGCATCTTACGGATGGCATGACAGTAAAGAAATTATGCAGTGTGCCATAACCATGAGTGA**  
**TAACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTTGCACAAC**  
**ATGGGGGATCATGTAACCTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGC**  
**GTGACACCACGATGCTGTAGCAATGGCAACAACGTTGCGCAAACTATTAAC'TGGCGAAC'TACTTACTCT**  
**AGCTTCCCGCAACAATTAATAGACTGGATGGAGCGGATAAAGTTGCAGGACCCTTCTGCGCTCGGCC**  
**CTTCCGGCTGGCTGGTTTTATTTGCTGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTTGCAG**  
**CACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAAGCAACTATGGA**  
**TGAACGAAATAGACAGATCGCTGAGATAGGTGCCCTCACTGATTAAGCATTTGGTAACTGTGACACCAAGTT**  
**TACTCATATATACTTTAGATTTGATTTAAAACCTTCATTTTTAAATTTAAAAGGATCTAGGTGAAGATCCTTT**  
**TTGATAATCTCATGACCAAAATCCCTTAACGTGAGTTTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAA**  
**GATCAAAGGATCTTCTTGAGATCCTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAACCCACCG**  
**CTACACGCGGTGGTTTTGTTGCTGGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAAC'TGGCTTCAGCA**  
**GAGCGCAGATAACAAATACTGTCTTCTAGTGTAGCCGTAGTTAGGCCACCCTTCAAGAACCTCTGTAGC**  
**ACCGCTACATACTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCTGTGCTTT**  
**ACCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTGCGGCTGAACGGGGGGTTCTGTGCA**  
**CACAGCCCAGCTTGGAGCGAACGACCTACACCGAAC'TGAGATACCTACAGCGTGAGCTATGAGAAAGCGC**  
**CACGCTTCCGAAGGGAGAAAAGGCGGACAGGTATCCGGTAAAGCGGCAGGTCGGAACAGGAGAGCGCACG**  
**AGGGAGCTTCCAGGGGAAACGCCCTGGTATCTTTATAGTCTCTGTGCGGTTTTCGCCACCTGACTGAGC**  
**GTGATTTTTTGTGATGCTCGTCAAGGGGGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTTACG**  
**GTTCTTGGCTTTTTGCTGGCTTTTTGCTCACATGTTCTTTTCCGCTTATCCCCGTGATCTGTGGATAAC**  
**CGTATTACCGCTTTGAGTGAGCTGATACCGCTCGCCGACGCCAAGCAGCGCAGCGAGTCACTGA**  
**GCGAGGAAGCGGAAGA**

Residue	Source	Comments
1-245	1-245	pUC-JN backbone (pUC9 derivative)
1-230	1-230	<i>lac</i> promoter/operator
275-1,918	1-1,644	Codon-optimized LcLuc ORF
1,922-4,356	294-2,728	pUC-JN backbone (pUC9 derivative)
4,183	2,555	ori: Origin of replication
2,555-3,415	927-1,787	Amp <sup>r</sup> : Ampicillin resistance gene

**Restriction enzyme sites of pJN-opLcLuc**

Indication Mode: 5'Terminal of the Site

Enzyme Name	Sequence	Count	Start	Position
AccI	GT!MKAC	0		
ApaI	GGGCC!C	2	1426	1459
Asp718I	G!GTACC	0		
BamHI	G!GATCC	1	1928	
BclI	T!GATCA	2	861	1602
BglII	A!GATCT	1	600	
EcoRI	G!AATTC	1	1946	
EcoRV	GAT!ATC	0		
HindIII	A!AGCTT	1	240	
KpnI	GGTAC!C	0		
MluI	A!CGCGT	0		
NcoI	C!CATGG	1	273	
NdeI	CA!TATG	1	2167	
NheI	G!CTAGC	0		
NotI	GC!GGCCGC	0		
PstI	CTGCA!G	1	1109	
SacI	GAGCT!C	0		
SalI	G!TCGAC	0		
ScaI	AGT!ACT	1	2859	
SmaI	CCC!GGG	1	1933	
XbaI	T!CTAGA	1	1922	
XhoI	C!TCGAG	0		

Supplier	Contact us
<b>JNC CORPORATION</b> Shin Otemachi Bldg. 9F 2-2-1 Otemachi, Chiyoda-ku, Tokyo 100-8105 URL <a href="http://www.jnc-corp.co.jp">http://www.jnc-corp.co.jp</a>	<b>JNC Corporation, Yokohama Research Center</b> 5-1 Okawa, Kanazawa-ku, Yokohama, Japan 236-8605 Tel: 045-786-5501 Fax: 045-786-5511 E-mail: <a href="mailto:biophoton@jnc-corp.co.jp">biophoton@jnc-corp.co.jp</a>