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pJNC-opRL	
Cat. No.	P-109
Gene/Insert name:	Codon-optimized *Renilla* luciferase (opRLuc)
Vector backbone:	pCMV-JNC
Vector type:	Mammalian cells
Backbone size w/o insert (bp):	5,363
Bacterial resistance:	Ampicillin and neomycin
Growth strain:	JM83
Growth temperature (ºC):	37
Growth instructions:	pJNC-opRL is resistant to ampicillin and neomycin
High or low copy:	High copy
Vector map:	pJNC-opRL
Coding sequence:	Nucleotide sequence & Amino acid sequence
Plasmid sequence:	pJNC-opRL (6,302 bp)
Restriction enzyme list:	Restriction enzyme sites of pJNC-opRL
GenBank Accession No.:	LC006267
Size:	10 µg
Constituents:	10 mM Tris-HCl (pH 7.6)－1 mM EDTA
Terms and Licenses:	MTA
Laboratory Reagent For Research Use Only	

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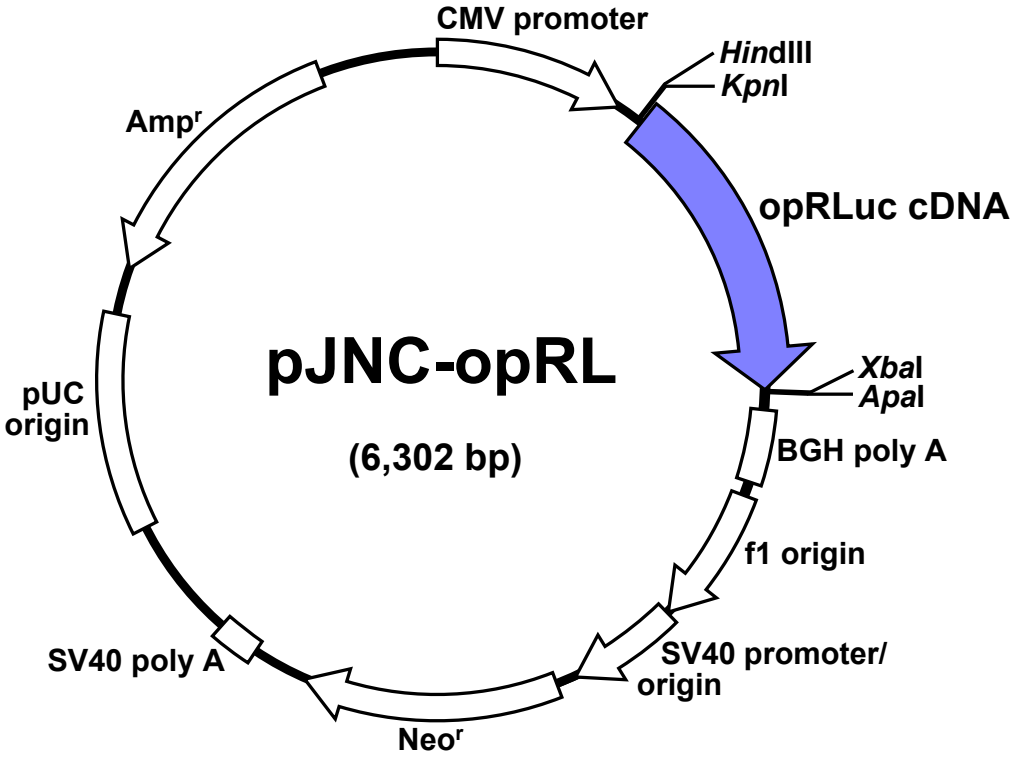
Mammalian expression vector:

Codon-optimized *Renilla* Luciferase, opRLuc

Cat. No. P-109

Name: pJNC-opRL
Insert: Codon-optimized *Renilla reniformis* luciferase cDNA
Vector: pCMV-JNC



- **Feature for pJNC-opRL:**

Residue	Sourse	Comments
1-669	1-669	pCMV-JNC backbone
1-588	1-588	CMV promoter
632-651	632-651	T7 promoter
673-1,605	1-933	opRLuc ORF
1,609-6,302	752-5,445	pCMV-JNC backbone
1,625-1,642	768-785	Sp6 promoter
1,668-1,892	811-1,035	BGH polyadenylation sequence
1,938-2,366	1,081-1,509	f1 origin
2,371-2,714	1,514-1,857	SV40 early promoter and origin
2,776-3,570	1,919-2,713	Neomycin resistance gene (ORF)
3,744-3,874	2,887-3,017	SV40 early polyadenylation signal
4,257-4,930	3,400-4,073	pUC origin
5,075-5,935	4,218-5,078	Ampicillin resistance gene (ORF)

Ref.

1) *Renilla* luciferase amino acid seq. & cDNA seq.: GenBank Accession No. M63501
Lorenz, W. W. *et al. Proc. Natl. Acad. Sci. USA* (1991) 88: 4438-4442.

2) Codon-optimized *Renilla* luciferase DNA seq.: GenBank Accession No. LC006267
Inouye, S. *et al*. *Protein Expr. Purif*. (2015) 109: 47-54

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Cat. No. P-109

Gene coding region (ORF: Codon-optimized *Renilla* luciferase/opRLuc)

Nucleotide sequence

AAGCTTGGTACCACC**ATG**ACCAGCAAGGTCTACGACCCCGAGCAGAGAAAGAGAATGATCACCGGCCCCC
AGTGGTGGGCCAGATGCAAGCAGATGAACGTCCTGGACAGCTTCATCAACTACTACGACAGCGAGAAGCA
CGCCGAGAACGCCGTCATCTTCCTGCACGGCAACGCCGCCAGCAGCTACCTGTGGAGACACGTCGTCCCC
CACATCGAGCCCGTCGCCAGATGCATCATCCCCGACCTGATCGGCATGGGCAAGAGCGGCAAGAGCGGCA
ACGGCAGCTACAGACTGCTGGACCACTACAAGTACCTGACCGCCTGGTTCGAGCTGCTGAACCTGCCCAA
GAAGATCATCTTCGTCGGCCACGACTGGGGCGCCTGCCTGGCCTTCCACTACAGCTACGAGCACCAGGAC
AAGATCAAGGCCATCGTCCACGCCGAGAGCGTCGTCGACGTCATCGAGAGCTGGGACGAGTGGCCCGACA
TCGAGGAGGACATCGCCCTGATCAAGAGCGAGGAGGGCGAGAAGATGGTCCTGGAGAACAACTTCTTCGT
CGAGACCATGCTGCCCAGCAAGATCATGAGAAAGCTGGAGCCCGAGGAGTTCGCCGCCTACCTGGAGCCC
TTCAAGGAGAAGGGCGAGGTCAGAAGACCCACCCTGAGCTGGCCCAGAGAGATCCCCCTGGTCAAGGGCG
GCAAGCCCGACGTCGTCCAGATCGTCAGAAACTACAACGCCTACCTGAGAGCCAGCGACGACCTGCCCAA
GATGTTCATCGAGAGCGACCCCGGCTTCTTCAGCAACGCCATCGTCGAGGGCGCCAAGAAGTTCCCCAAC
ACCGAGTTCGTCAAGGTCAAGGGCCTGCACTTCAGCCAGGAGGACGCCCCCGACGAGATGGGCAAGTACA
TCAAGAGCTTCGTCGAGAGAGTCCTGAAGAACGAGCAG**TAA**TCTAGA

Amino acid sequence

MTSKVYDPEQRKRMITGPQWWARCKQMNVLDSFINYYDSEKHAENAVIFLHGNAASSYLWRHVVPHIEPV
ARCIIPDLIGMGKSGKSGNGSYRLLDHYKYLTAWFELLNLPKKIIFVGHDWGACLAFHYSYEHQDKIKAI
VHAESVVDVIESWDEWPDIEEDIALIKSEEGEKMVLENNFFVETMLPSKIMRKLEPEEFAAYLEPFKEKG
EVRRPTLSWPREIPLVKGGKPDVVQIVRNYNAYLRASDDLPKMFIESDPGFFSNAIVEGAKKFPNTEFVK
VKGLHFSQEDAPDEMGKYIKSFVERVLKNEQ*

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pJNC-opRL (6,302 bp)

GTTGACATTGATTATTGACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATATAT
GGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGCTGACCGCCCAACGACCCCCGCCCATTG
ACGTCAATAATGACGTATGTTCCCATAGTAACGCCAATAGGGACTTTCCATTGACGTCAATGGGTGGAGT
ATTTACGGTAAACTGCCCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTACGCCCCCTATTGACGT
CAATGACGGTAAATGGCCCGCCTGGCATTATGCCCAGTACATGACCTTATGGGACTTTCCTACTTGGCAG
TACATCTACGTATTAGTCATCGCTATTACCATGGTGATGCGGTTTTGGCAGTACATCAATGGGCGTGGAT
AGCGGTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAGTTTGTTTTGGCACCA
AAATCAACGGGACTTTCCAAAATGTCGTAACAACTCCGCCCCATTGACGCAAATGGGCGGTAGGCGTGTA
CGGTGGGAGGTCTATATAAGCAGAGCTCTCTGGCTAACTAGAGAACCCACTGCTTACTGGCTTATCGAAA
TTAATACGACTCACTATAGGGAGACCCAAGCTTGGTACCACCATGACCAGCAAGGTCTACGACCCCGAGC
AGAGAAAGAGAATGATCACCGGCCCCCAGTGGTGGGCCAGATGCAAGCAGATGAACGTCCTGGACAGCTT
CATCAACTACTACGACAGCGAGAAGCACGCCGAGAACGCCGTCATCTTCCTGCACGGCAACGCCGCCAGC
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GCATGGGCAAGAGCGGCAAGAGCGGCAACGGCAGCTACAGACTGCTGGACCACTACAAGTACCTGACCGC
CTGGTTCGAGCTGCTGAACCTGCCCAAGAAGATCATCTTCGTCGGCCACGACTGGGGCGCCTGCCTGGCC
TTCCACTACAGCTACGAGCACCAGGACAAGATCAAGGCCATCGTCCACGCCGAGAGCGTCGTCGACGTCA
TCGAGAGCTGGGACGAGTGGCCCGACATCGAGGAGGACATCGCCCTGATCAAGAGCGAGGAGGGCGAGAA
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GTCGAGGGCGCCAAGAAGTTCCCCAACACCGAGTTCGTCAAGGTCAAGGGCCTGCACTTCAGCCAGGAGG
ACGCCCCCGACGAGATGGGCAAGTACATCAAGAGCTTCGTCGAGAGAGTCCTGAAGAACGAGCAGTAATC
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ACAGGCATCGTGGTGTCACGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGC
GAGTTACATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGAAG
TAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCATGCCATCC
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ACTCGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAA
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ACAATTGCATGAAGAATCTGCTTAGGGTTAGGCGTTTTGCGCTGCTTCGCGATGTACGGGCCAGATATAC
GC

Residue	Sourse	Comments
1-669	1-669	pCMV-JNC backbone
1-588	1-588	CMV promoter
632-651	632-651	T7 promoter
673-1,605	1-933	opRLuc ORF
1,609-6,302	752-5,445	pCMV-JNC backbone
1,625-1,642	768-785	Sp6 promoter
1,668-1,892	811-1,035	BGH polyadenylation sequence
1,938-2,366	1,081-1,509	f1 origin
2,371-2,714	1,514-1,857	SV40 early promoter and origin
2,776-3,570	1,919-2,713	Neomycin resistance gene (ORF)
3,744-3,874	2,887-3,017	SV40 early polyadenylation signal
4,257-4,930	3,400-4,073	pUC origin
5,075-5,935	4,218-5,078	Ampicillin resistance gene (ORF)

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Cat. No. P-109

Restriction enzyme sites of pJNC-opRL

Enzyme Name	Sequence	Count	Cutting Positions
AccI	GT!MKAC	5	687, 1113, 3876, 3883, 6071
ApaI	GGGCC!C	1	1620
Asp718I	G!GTACC	1	665
BamHI	G!GATCC	0	-
BclI	T!GATCA	4	714, 1167, 1656, 2746
BglII	A!GATCT	1	6084
EcoRI	G!AATTC	0	-
EcoRV	GAT!ATC	0	-
HincII	GTY!RAC	4	4, 1114, 3884, 6072
HindIII	A!AGCTT	1	659
KpnI	GGTAC!C	1	669
MluI	A!CGCGT	0	-
NcoI	C!CATGG	3	380, 2602, 3337
NdeI	CA!TATG	1	254
NheI	G!CTAGC	0	-
NotI	GC!GGCCGC	0	-
PstI	CTGCA!G	1	2958
SacI	GAGCT!C	2	588, 1652
SalI	G!TCGAC	3	1112, 3882, 6070
ScaI	AGT!ACT	1	5629
SmaI	CCC!GGG	1	2718
StuI	AGG!CCT	1	2694
XbaI	T!CTAGA	1	1610
XhoI	C!TCGAG	0	-

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

JNC CORPORATION

SAFETY DATA SHEET

According to JIS Z 7253:2012

Creation Date 01-Aug-2016

Revision Date

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product name	pJNC-opRL
Product code	P-109

Recommended uses and restrictions on use
For research purposes

Manufacturer
JNC CORPORATION,Yokohama research Center
5-1, Okawa, Kanazawa-ku, Yokohama 236-8605, Japan
Phone: +81-45-786-5501
Fax: +81-45-786-5511

Supplier
JNC CORPORATION
Shin Otemachi Bldg., 2-2-1 Otemachi, Chiyoda-ku, Tokyo 100-8105
Phone: +81-3-3243-6330
Fax: +81-3-3243-6363

Emergency telephone number
+81-45-786-5501

Section 2: HAZARDS IDENTIFICATION

GHS classification

Classification of the substance or mixture

・Not a hazardous substance or mixture according to the Globally Harmonized System (GHS)

Pictograms

・none

Signal word

・none

Hazard statements

・Not a hazardous substance or mixture according to the Globally Harmonized System (GHS)

Precautionary statements-(Prevention)

• Not applicable

Precautionary statements-(Response)

• Not applicable

Precautionary statements-(Storage)

• Not applicable

Precautionary statements-(Disposal)

• Not applicable

Others

Other hazards

・Not available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical Name	Weight-%	Molecular weight	EC No.	ISHL No.	CAS No.
EDTA	<0.1%	292.24	200-449-4	N/A	60-00-4

Section 4: FIRST AID MEASURES

Inhalation
Remove to fresh air. If symptoms persist, call a physician.
Skin contact
Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.
Eye contact
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.
Ingestion
Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.
Protection of first-aiders
Use personal protective equipment as required.

Section 5: FIRE FIGHTING MEASURES

Suitable extinguishing media
Water spray (fog), carbon dioxide (CO2), Foam, Extinguishing powder, Sand
Unsuitable extinguishing media
No information available
Special extinguishing method
No information available
Specific hazards arising from the chemical product
Thermal decomposition can lead to release of irritating and toxic gases and vapors.
Protection of fire-fighters
Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.
Environmental precautions
To be careful not discharged to the environment without being properly handled waste water contaminated.
Methods and materials for contaminent and methods and materials for cleaning up
Do not touch spilled material without suitable protection(See section 8). After material is completely picked up, wash the spill site with soap and water and ventilate the area. Put all wastes in a plastic bag for disposal and seal it tightly. Remove, clean, or dispose of contaminated clothing.
Recoverly, neutralization
No information available
Secondary disaster prevention measures
Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE

Handling
Technical measures
Avoid contact with strong oxidizing agents. Use with local exhaust ventilation.
Precautions

Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

Safety handling precautions

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

Storage

Safe storage conditions

Storage conditions	Container protected from light, and store tightly closed in freezer (-20°C).
Safe packaging material	Glass or Plastic container
Incompatible substances	Strong oxidizing agents

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

Exposure limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Personal protective equipment

Respiratory protection	Dust mask
Hand protection	Protection gloves
Eye protection	protective eyeglasses or chemical safety goggles
Skin and body protection	Long-sleeved work clothes

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Form

Color	Colorless
Appearance	No data available
Odor	No data available
pH	No data available
Melting point/freezing point	No data available
Boiling point, initial boiling point and boiling range	No data available
Flash point	No data available
Evaporation rate:	No data available
Flammability (solid, gas):	No data available
Upper/lower flammability or explosive limits	
	No data available
Lower：	No data available
Vapour pressure	No data available
Vapour density	No data available
Specific Gravity / Relative density	No data available
Solubilities	Water: soluble
n-Octanol/water partition coefficient:(log Pow)	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity (coefficient of viscosity)	No data available
Dynamic viscosity	No data available

Section 10: STABILITY AND REACTIVITY

Stability

Stability	Stable under the recommendated strage condition
Reactivity	No data available

Hazardous reactions
None under normal processing
Conditions to avoid
Extremes of temperature and direct sunlight
Incompatible materials
Strong oxidizing agents
Hazardous decomposition products
Carbon monooxide (CO), carbon dioxide (CO2), Nitrogen oxides (NOx)

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity	No data available
Skin irritation/corrosion	No data available
Serious eye damage/ irritation	No data available
Respiratory or skin sensitization	No data available
Reproductive cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
STOT-single exposure	No data available
STOT-repeated exposure	No data available
Aspiration hazard	No data available

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity	No information available
Other data	No data available
Persistence and degradability	No information available
Bioaccumulative potential	No information available
Mobility in soil	No information available
Hazard to the ozone layer	No information available

Section 13: DISPOSAL CONSIDERATIONS

Waste from residues
Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated container and contaminated packaging
Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: TRANSPORT INFORMATION

ADR/RID	Not regulated
UN number	-
Proper shipping name:	
UN classfication	
Subsidiary hazard class	
Packing group	
Marine pollutant	Not applicable
IMDG	Not regulated
UN number	-
Proper shipping name:	
UN classfication	
Subsidiary hazard class	
Packing group	
Marine pollutant (Sea)	Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available
IATA	Not regulated
UN number	-
Proper shipping name:	
UN classfication	
Subsidiary hazard class	
Packing group	
Environmentally Hazardous Substance	Not applicable

Section 15: REGULATORY INFORMATION

International Inventories

EINECS/ELINCS	-
TSCA	-

Japanese regulations

Fire Service Act	Not applicable
Poisonous and Deleterious Substances Control Law	Not applicable
Industrial Safety and Health Act	Not applicable
Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc	Not applicable
Regulations for the carriage and storage of dangerous goods in ship	Not applicable
Civil Aeronautics Law	Not applicable
Pollutant Release and Transfer Register Law	Not applicable
Export Trade Control Order	Not applicable

Section 16: OTHER INFORMATION

Literature and references

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
GHS Classification is acoording to JIS Z7252(2010). *JIS: Japanese Industrial Standards

End of Safety Data Sheet