

## Certificate of Analysis

### pNLCol1[*luc2*-P2A-*NlucP*/Hygro] Vector:

<b>Part No.</b>	<b>Size</b>
N146A	20µg

**Description:** The pNLCol1[*luc2*-P2A-*NlucP*/Hygro] Vector<sup>(a,b)</sup> is a second generation coincidence reporter vector (Col; 1) that allows expression of both firefly luciferase (Fluc, *luc2* gene) from *Photinus pyralis* and NanoLuc<sup>®</sup> Luciferase fused to a PEST destabilization domain (NanoLuc<sup>®</sup>-PEST, *NlucP* gene) from the same mRNA transcript. The stoichiometric expression of both luciferases is achieved by use of the P2A sequence from porcine teschovirus-1, which promotes a ribosomal skip and expression of the two unfused enzymes with different compound interaction profiles. When used in high-throughput screening, true hits will show a similar response from both reporters, reducing the number of false hits and the workload associated with follow-up screens.

The *luc2* and *NlucP* genes are codon optimized for mammalian expression, and all pNL vectors have minimal consensus transcription factor-binding sites to reduce anomalous expression. The pNLCol1[*luc2*-P2A-*NlucP*/Hygro] Vector is a basic vector with no promoter. However, it contains a multiple cloning region to allow insertion of a promoter sequence of interest.

The pNLCol1[*luc2*-P2A-*NlucP*/Hygro] Vector contains the following key features:

- Firefly luciferase reporter gene (*luc2*).
- P2A peptide sequence that promotes a ribosomal skip, resulting in the stoichiometric expression of two unfused reporter proteins from the same mRNA transcript.
- NanoLuc<sup>®</sup> Luciferase reporter gene fused to the PEST destabilization domain (*NlucP*). PEST-mediated turnover by the proteasome provides a reporter with a very short intracellular protein half-life, providing a reporter protein that responds more quickly and typically with greater signal-to-background compared to other reporters. NanoLuc<sup>®</sup>-PEST is also substantially brighter than *Renilla* luciferase, providing a dramatic increase in sensitivity for the second generation coincidence reporter system.
- Ampicillin resistance gene for selection in bacteria.
- Hygromycin resistance gene for selection in mammalian cells.
- Multiple cloning region for insertion of promoter sequence of choice.

**Concentration:** 1µg/µl.

**GenBank<sup>®</sup> Accession Number:** KM359771.

**Storage Buffer:** The pNLCol1[*luc2*-P2A-*NlucP*/Hygro] Vector is supplied in 10mM Tris-HCl (pH 7.4), 1mM EDTA.

**Storage Conditions:** See the product information label for storage recommendations and expiration date.

## Quality Control Assays

### Contaminant Assays

**Contaminating Nucleic Acids:** RNA, single-stranded DNA and chromosomal DNA are not evident in specified quantities of the vector as determined by agarose gel electrophoresis.

**Endotoxin Concentration:** Endotoxin Units (EU) are obtained using *Limulus amoebocyte* lysate testing. The specification is <100EU/mg of plasmid DNA.

**Nuclease Assay:** Following incubation of 1µg of the vector in restriction enzyme buffer at 37°C for 16–24 hours, no evidence of nuclease activity is detected by agarose gel electrophoresis.

**Physical Purity:**  $A_{260}/A_{280} \geq 1.80$ ,  $A_{260}/A_{250} \geq 1.05$  at pH 7.4.

### Functional Assays

**Identity Assay:** The vector was sequenced completely and has 100% identity with the published sequence available at: [www.promega.com/vectors](http://www.promega.com/vectors)

**Restriction Digestion:** The functional purity of vector DNA is verified by successful digestion with restriction enzymes at the optimal temperature for one hour. Samples are examined by agarose gel electrophoresis to compare cut and uncut vector DNA with marker DNA.

## Reference

1. Cheng, K.C. and Inglese, J. (2012) A coincidence reporter-gene system for high-throughput screening. *Nat. Methods*, **9**, 937.

Signed by:

R. Wheeler, Quality Assurance

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**Promega**

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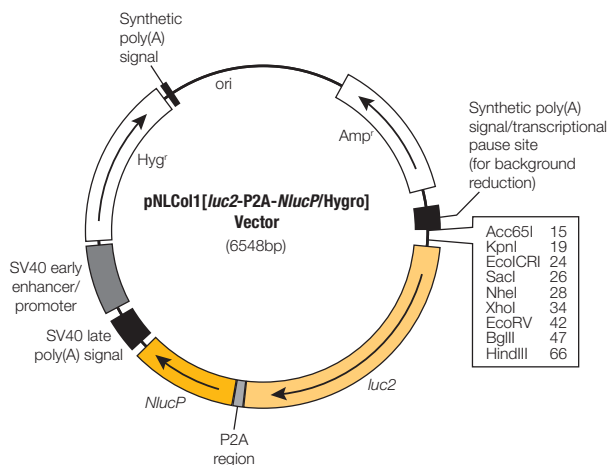
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## pNLCol1[*luc2*-P2A-*NlucP*/Hygro] Vector Features and Maps

The following features are present in the vector based on nucleotide sequence.

Multiple cloning region	1–70
<i>luc2</i> reporter gene	100–1749
P2A region	1750–1815
<i>NlucP</i> reporter gene	1816–2454
SV40 late poly(A) region	2494–2715
SV40 early enhancer/promoter	2763–3181
Hygromycin resistance coding region	3206–4243
Synthetic poly(A) sequence	4267–4315
Reporter Vector primer 4 (RVprimer4) binding region	4382–4401
<i>Co</i> /E1-derived plasmid replication origin	4639
Synthetic β-lactamase (Amp <sup>r</sup> ) coding region	5430–6290
Synthetic poly(A) signal/transcriptional pause region	6395–6548
Reporter Vector primer 3 (RVprimer3) binding region	6497–6516

## Multiple cloning region of the pNLCol1[*luc2*-P2A-*NlucP*/Hygro] Vector.



Sequence information and vector maps are available online at: [www.promega.com/vectors](http://www.promega.com/vectors)

For information on the Nano-Glo® Dual-Luciferase® Assay see Technical Manual #TM426, available online at: [www.promega.com/protocols](http://www.promega.com/protocols)

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