Promoter Analysis Tools

pGL4 Luciferase Vectors, Dual-Luciferase® Assays and more…

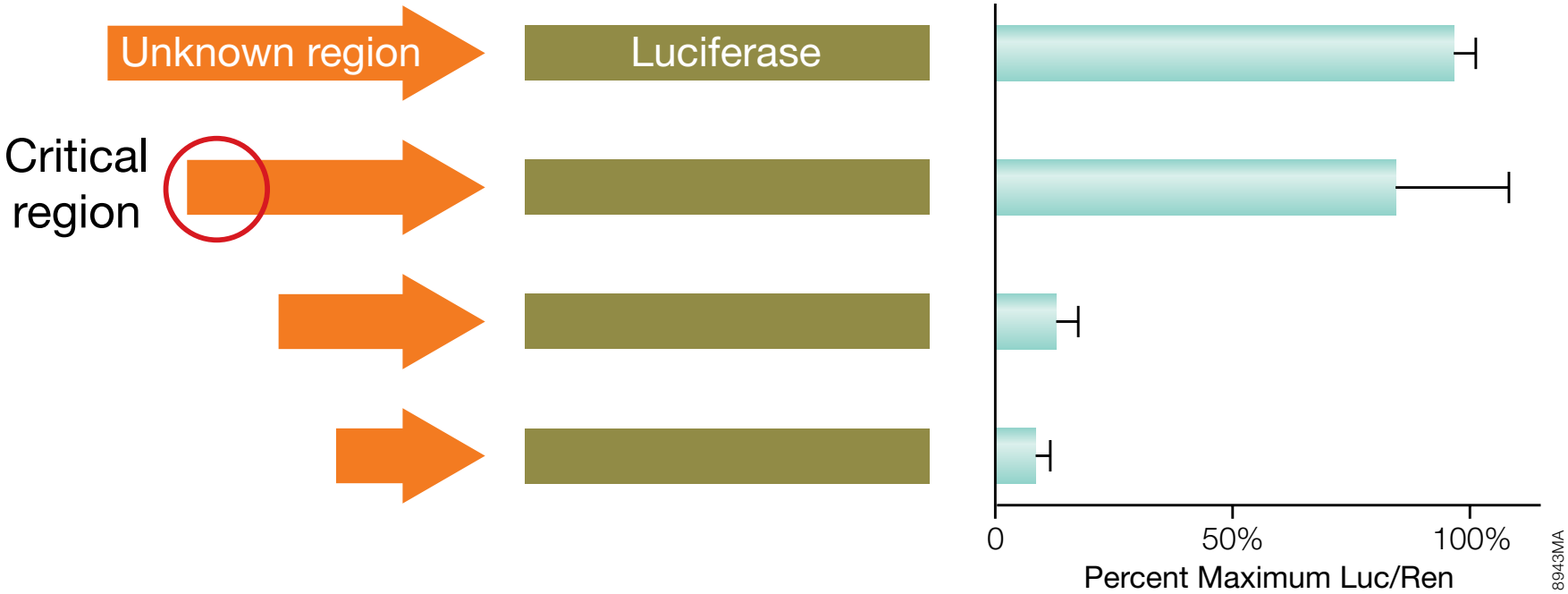
Harnessing the power of bioluminescence to understand cellular physiology

Tap screen to start

Promega

Traditional Promoter Dissection

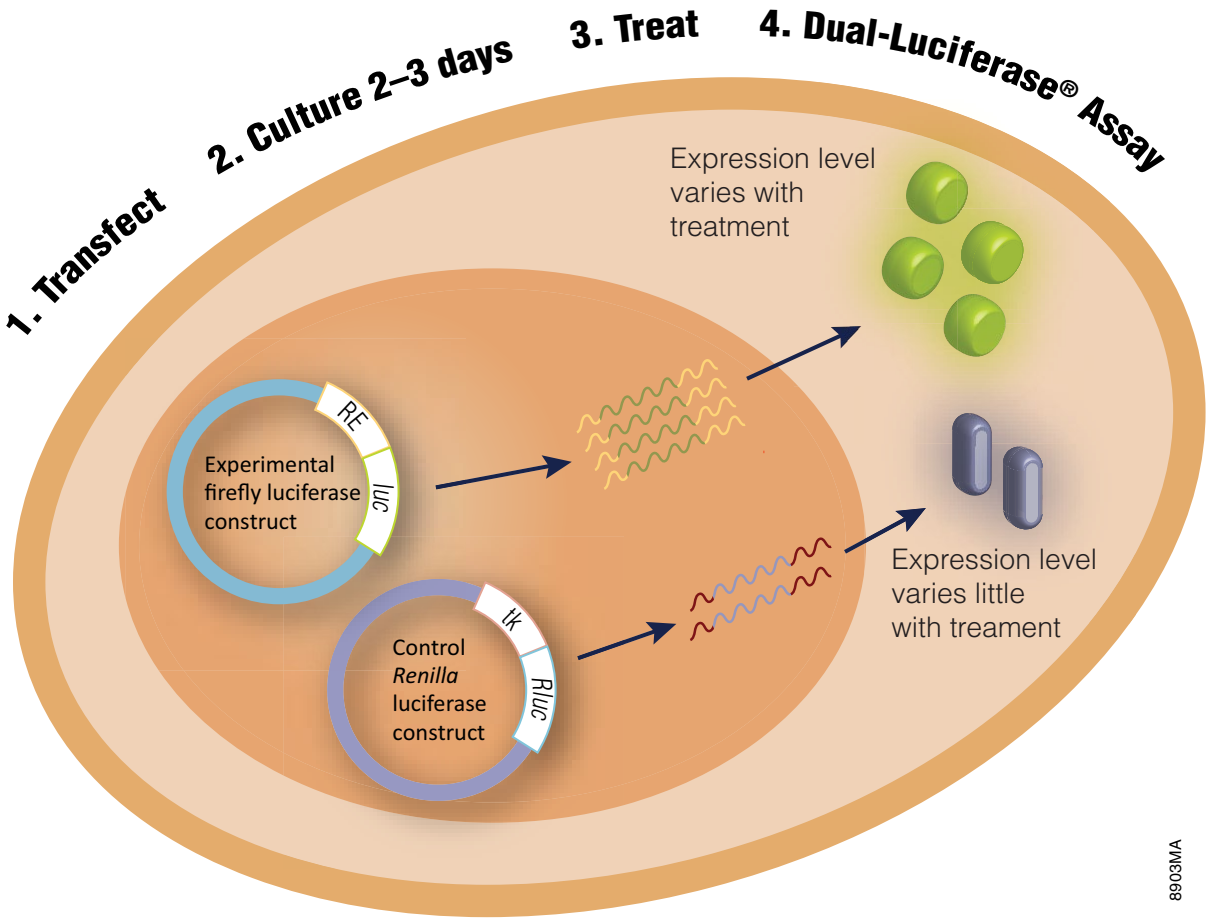
Deletion mutagenesis can be used to find functional elements responsible for the regulation of gene transcription. The cloned promoter is inserted upstream of the luciferase gene and the resulting construct transfected into cells to determine the function of the sequence.



Commonly called “promoter bashing”

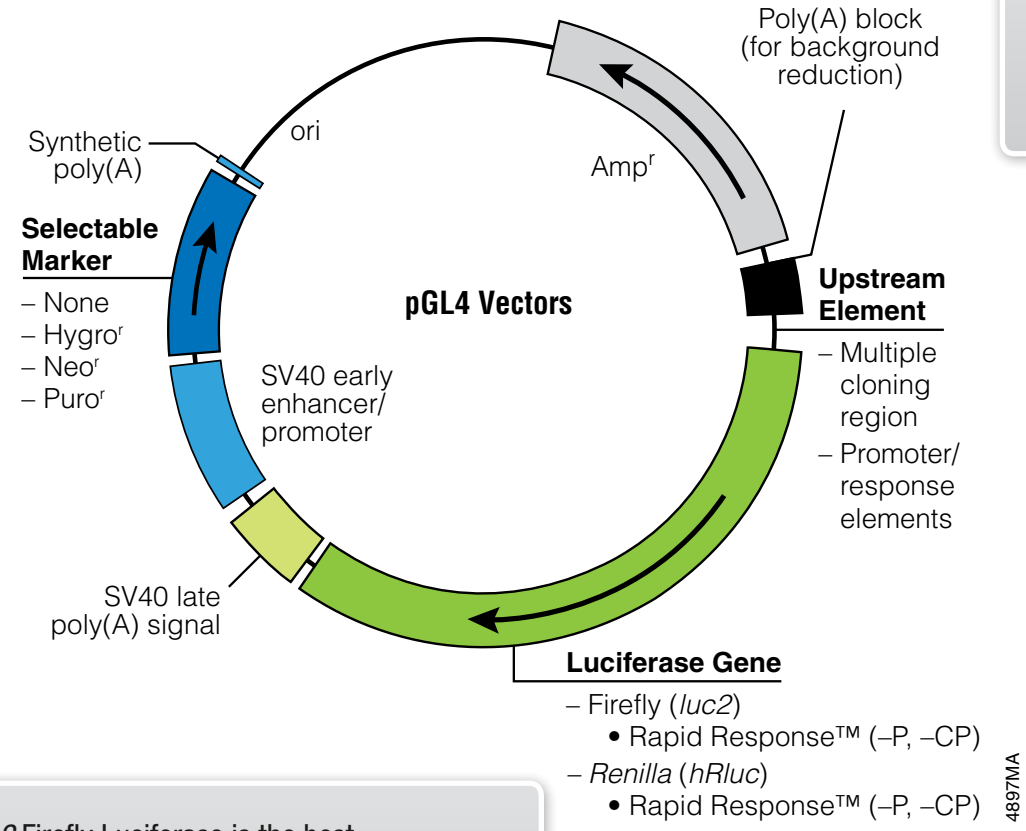
Assay Principle

- In a Dual-Luciferase® Assay, both the experimental construct with the promoter of interest and a control construct are introduced into the cell
- The *Renilla* control vector provides a consistent expression of *hRluc* for normalization of the Firefly luciferase experimental vector
- The *hRluc* activity will normalize for conditions of poor transfection efficiency and/or cytotoxicity
- Firefly and *Renilla* luciferase expression is easily assayed with the Dual-Luciferase® or Dual-Glo® Luciferase Assay Systems
- The roles of the firefly and *Renilla* luciferases can be reversed.

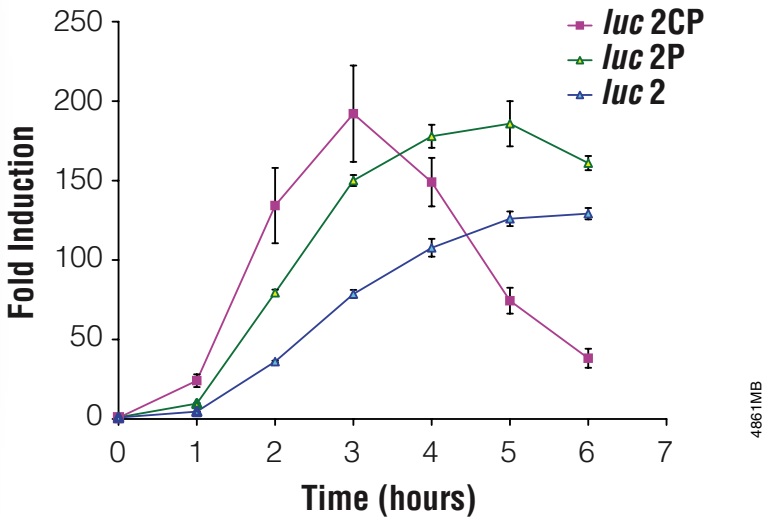


Experimental pGL4 Firefly Luciferase Vectors

Choose the functionality you need in your vector



pGL4 Vector backbone was redesigned to remove 75% of cryptic transcription factor binding sites in the pGL3 Vector backbone.



luc2 Firefly Luciferase is the best

- Codon optimized for mammalian cells
- Removal of 90% of cryptic transcription factor binding sites found in luc+ of pGL3

pGL4 Technical Manual

online pGL4 Vector Selector

RapidResponse™ *luc2* genes have shortened half-lives and the shortened half-lives allow closer coupling to triggering event.

Experimental pGL4 Firefly Luciferase Vectors

Vector	MCS	Luciferase Gene	Selectable Marker	Cat. #
pGL4.10 [*luc2*] Vector	Y	*luc2*	No	E6651
pGL4.11 [*luc2P*] Vector	Y	*luc2P*	No	E6661
pGL4.12 [*luc2CP*] Vector	Y	*luc2CP*	No	E6671
pGL4.14 [*luc2*/Hygro] Vector	Y	*luc2*	Hygromycin	E6691
pGL4.15 [*luc2P*/Hygro] Vector	Y	*luc2P*	Hygromycin	E6701
pGL4.16 [*luc2CP*/Hygro] Vector	Y	*luc2CP*	Hygromycin	E6711
pGL4.17 [*luc2*/Neo] Vector	Y	*luc2*	Neomycin	E6721
pGL4.18 [*luc2P*/Neo] Vector	Y	*luc2P*	Neomycin	E6731
pGL4.19 [*luc2CP*/Neo] Vector	Y	*luc2CP*	Neomycin	E6741
pGL4.20 [*luc2*/Puro] Vector	Y	*luc2*	Puromycin	E6751
pGL4.21 [*luc2P*/Puro] Vector	Y	*luc2P*	Puromycin	E6761
pGL4.22 [*luc2CP*/Puro] Vector	Y	*luc2CP*	Puromycin	E6771
Constitutively Expressed				
pGL4.13 [*luc2*/SV40] Vector	N	*luc2*	No	E6681
pGL4.50 [*luc2*/CMV/Hygro] Vector	N	*luc2*	Hygromycin	E1310
pGL4.51 [*luc2*/CMV/Neo] Vector	N	*luc2*	Neomycin	E1320

Renilla Luciferase Control Vectors Ordering Information >

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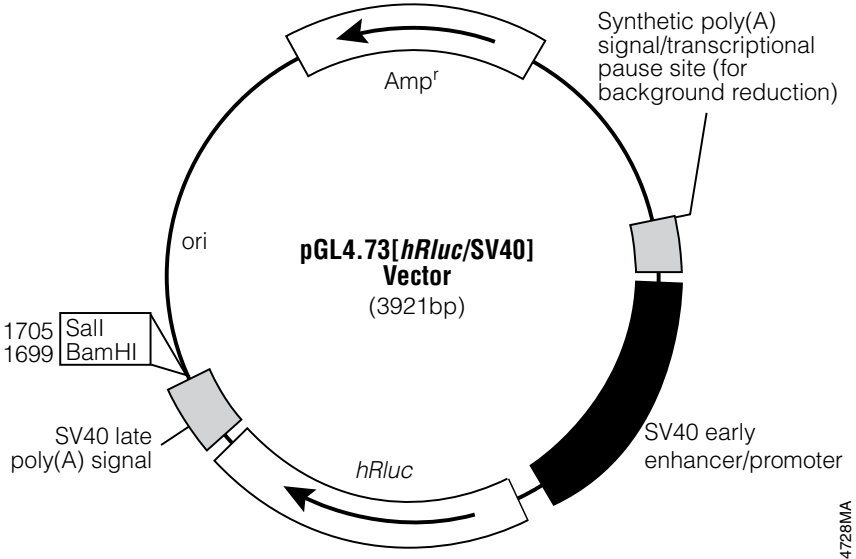
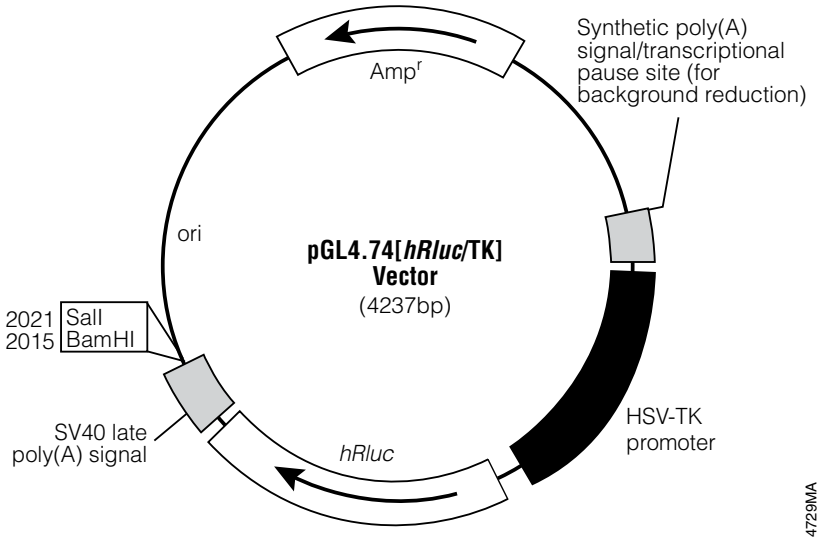
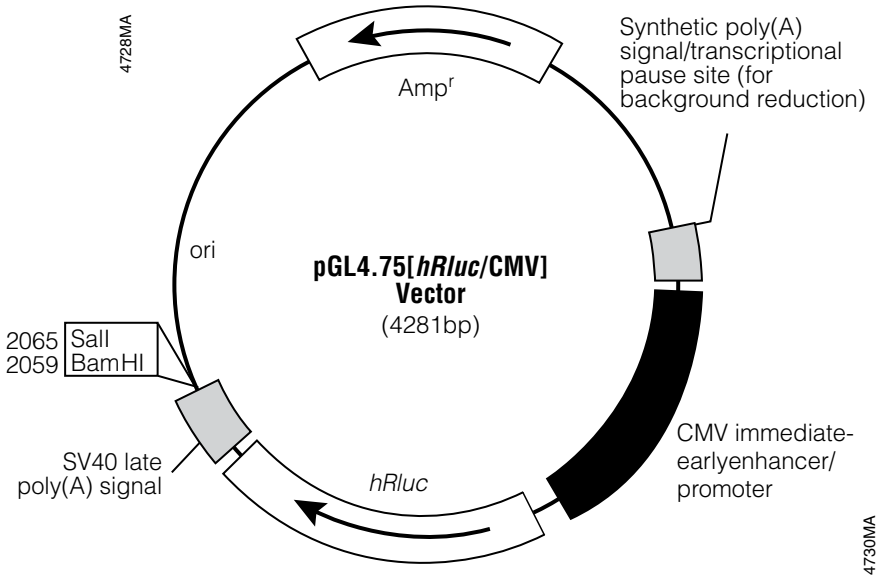
Renilla Luciferase Control Vectors

The best companions for normalizing firefly luciferase reporters







hRluc Improvements

- Codon optimized for mammalian cells
- Removal of 95% of cryptic transcription factor binding sites found in *Rluc* of pRL

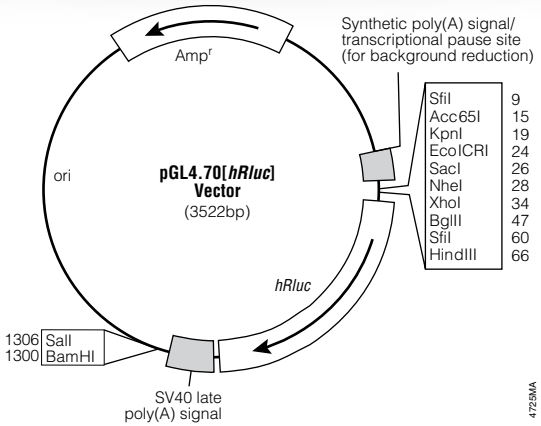
pGL4 Technical Manual

online pGL4 Vector Selector

Renilla Luciferase Control Vectors

Vector	MCS	Luciferase Gene	Selectable Marker	Cat. #
pGL4.73 [*hRluc*/SV40] Vector	N	*hRluc*	No	E6911
pGL4.74 [*hRluc*/TK] Vector	N	*hRluc*	No	E6921
pGL4.75 [*hRluc*/CMV] Vector	N	*hRluc*	No	E6931
Promoterless vectors with RapidResponse™ Gene options				
pGL4.70 [*hRluc*] Vector	Y	*hRluc*	No	E6881
pGL4.71 [*hRlucP*] Vector	Y	*hRlucP*	No	E6891
pGL4.72 [*hRlucCP*] Vector	Y	*hRlucCP*	No	E6901

Products may be covered by pending or isssued patents or may have certain limitations. Please visit www.promega.com for more information. The method of recombinant Coleoptera luciferases is covered by U.S. patent Nos. 5,583,024; 5,674,713; and 5,700,673.



Experimental pGL4 Firefly Luciferase Vectors Ordering Information >

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Related Products

Product	Size	Cat. #
Dual Reporter Assays (larger sizes available)		
Dual-Luciferase® Reporter Assay System 5 Step assay requiring lysate production. Use in multi-well plates requires dual-injectors	100 assays	E1910
Dual-Glo® Luciferase Assay System 2 step assay that lyses cells directly. Use in multiwell plates does not require injectors.	10ml	E2920
Rapid, Transfection-Grade Plasmid Preps		
PureYield™ Plasmid Miniprep System	100 preps	A1223
PureYield™ Plasmid Midiprep System	25 preps	A2492
PureYield™ Plasmid Maxiprep System	10 preps	A2392
Transfection Reagent		
FuGENE® HD Transfection Reagent*	1ml	E2311
	5x1ml	E2312

*** FuGENE HD is sold only for research use at non-profit entities. See terms of use at** www.promega.com/lull

Introduction to Reporter Gene Assays Animation

Online pGL4 Vector Selector

GloMax® Multi+ Detection System

Need a luminometer?
Go to www.promega.com/glomax
to learn more and request a demo

References

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Paguio, A., et al. (2005) pGL4 Vectors: A new generation of luciferase reporter vectors. *Promega Notes* **89**, 7-10.

Almond, B.D., et al. (2004) Introducing the Rapid Response™ Reporter Vectors. *Promega Notes* **87**, 18-22.

Zhuang, Y., et al. (2001) New synthetic Renilla gene and assay system increase expression, reliability and sensitivity. *Promega Notes* **79**, 6-11.

Schagat, T., Paguio, A. and Kopish, K. (2007) Normalizing genetic reporter assays: Approaches and considerations for increasing consistency and statistical significance. *Cell Notes* **17**, 9-12.

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Protocols & Applications Guide: Bioluminescent Reporters

Citations

pGL4.10-pGL4.12 HighWire Press®

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