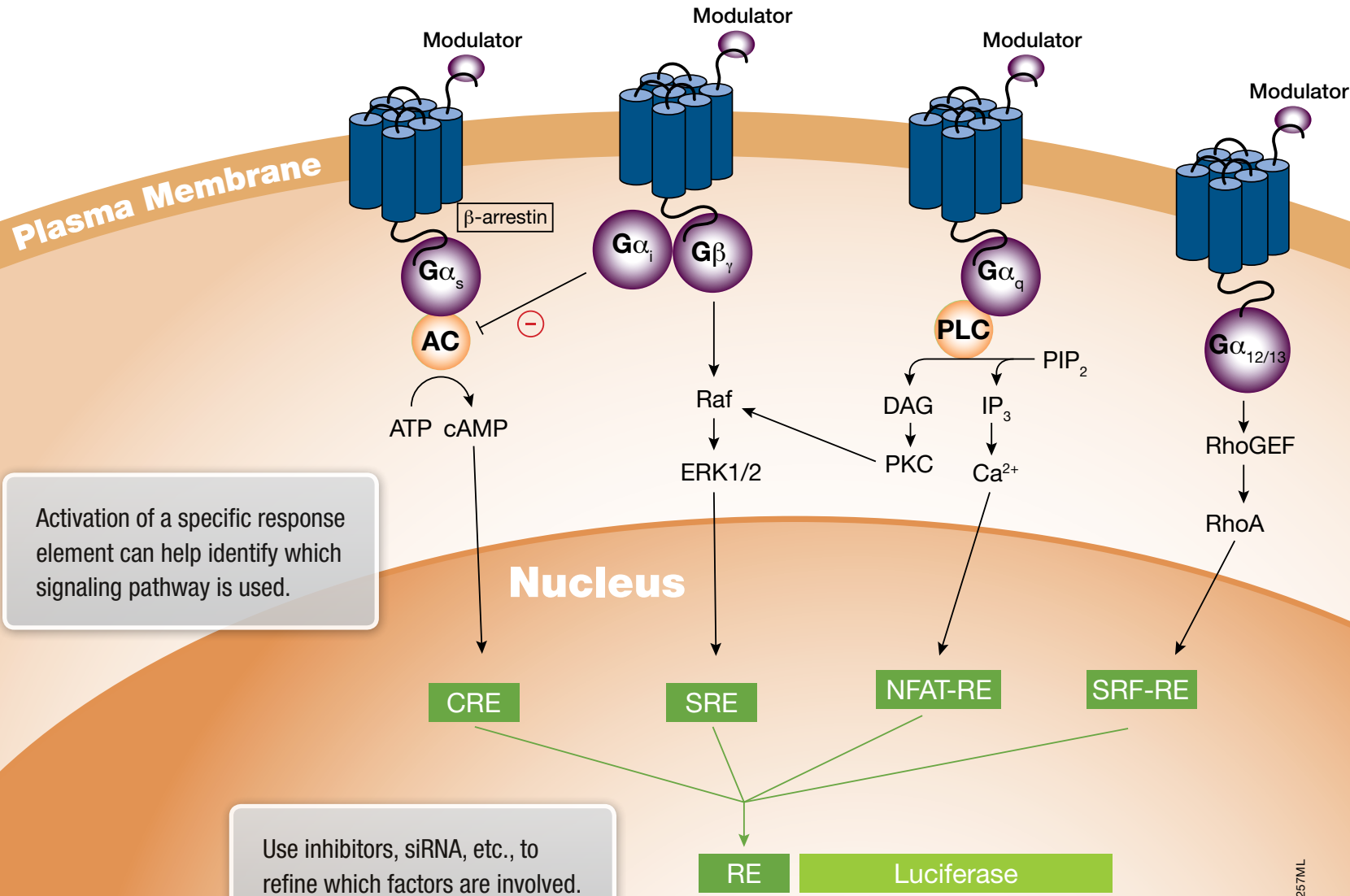


# Signaling Pathway Tools

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

*Harnessing the power  
of bioluminescence to  
understand cellular physiology*

# Find Signaling Pathway with Response Elements



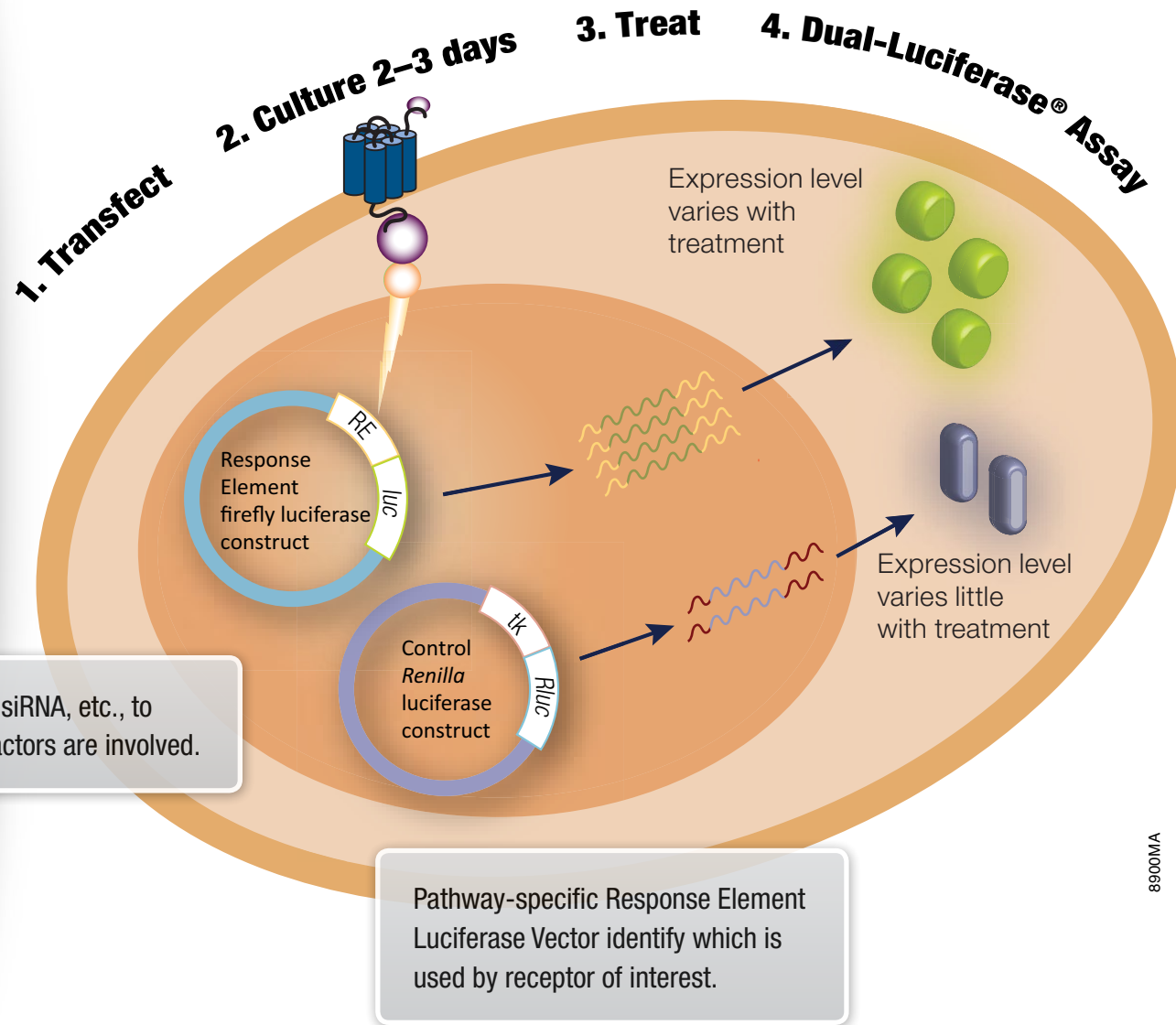
5257ML

# Assay Principle

1. Testing receptor with different response elements can identify which signaling pathway is being used.
2. Small molecule inhibitors and siRNAs can identify specific proteins involved in the signaling cascade.
3. Use *Renilla* control vector for assay normalization.

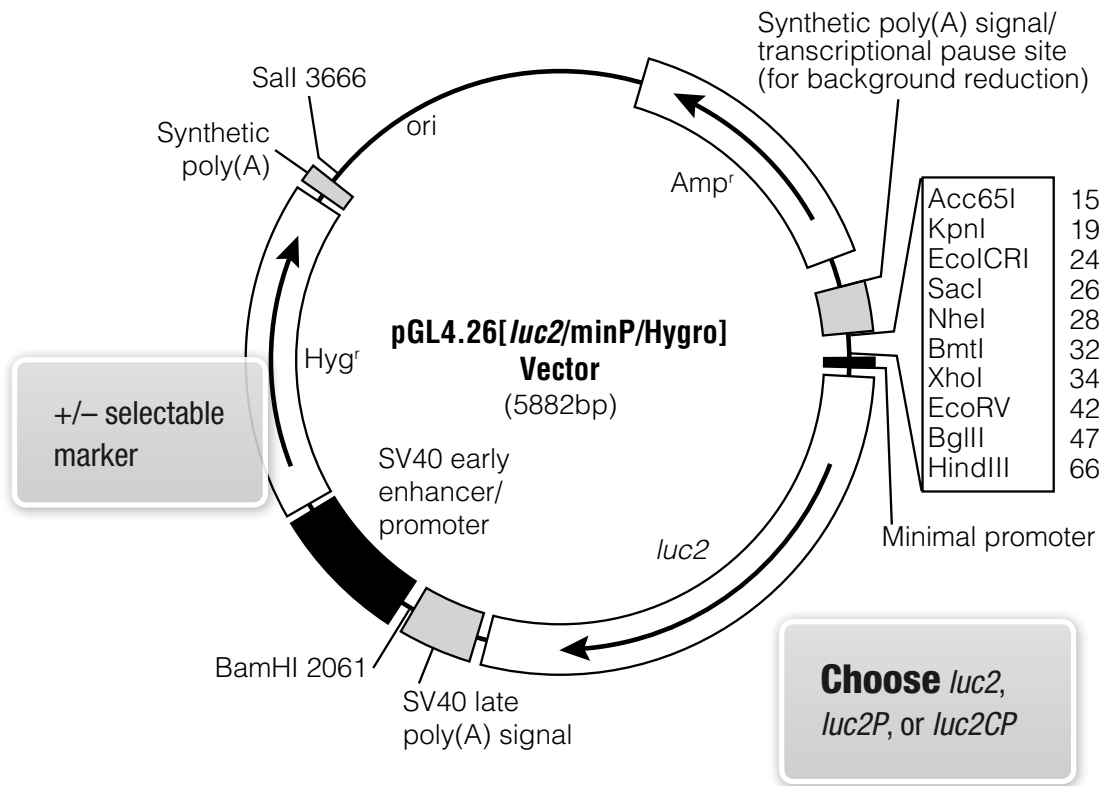
Use inhibitors, siRNA, etc., to refine which factors are involved.

Pathway-specific Response Element Luciferase Vector identify which is used by receptor of interest.



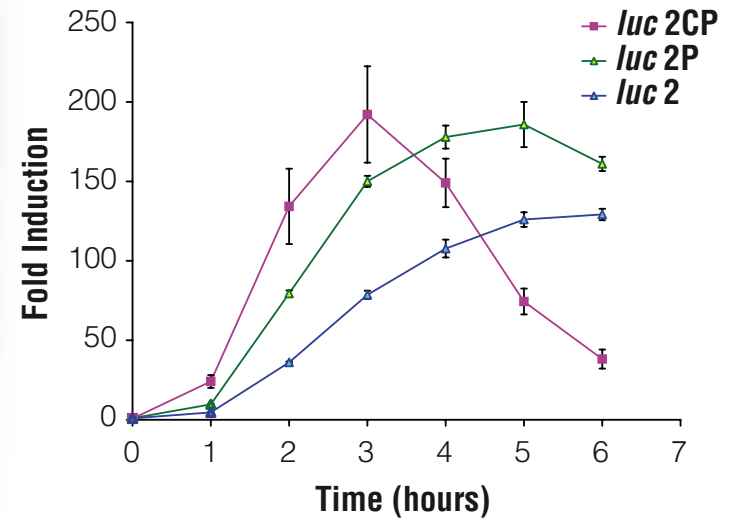
# Signaling Pathway pGL4 Vectors

Minimal promoter element, Insert your response element upstream



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

5951MA



4861MB

*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](#)

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

# Ordering Information

Vector	MCS	Luciferase Gene	Selectable Marker	Cat. #
<a href="#">pGL4.23 [Luc2/minP] Vector</a>	Y	<i>luc2</i>	No	E8411
<a href="#">pGL4.24 [Luc2P/minP] Vector</a>	Y	<i>luc2P</i>	No	E8421
<a href="#">pGL4.25 [Luc2CP/minP] Vector</a>	Y	<i>luc2CP</i>	No	E8431
<a href="#">pGL4.26 [Luc2/minP/Hygro] Vector</a>	Y	<i>luc2</i>	Hygromycin	E8441
<a href="#">pGL4.27 [Luc2P/minP/Hygro] Vector</a>	Y	<i>luc2P</i>	Hygromycin	E8451
<a href="#">pGL4.28 [Luc2CP/minP/Hygro] Vector</a>	Y	<i>luc2CP</i>	Hygromycin	E8461

## Pre-Designed Response Element Vectors

★ <a href="#">pGL4.29 [Luc2P/CRE/Hygro] Vector</a>	N	<i>luc2P</i>	Hygromycin	E8471
★ <a href="#">pGL4.30 [Luc2P/NFAT-RE/Hygro] Vector</a>	N	<i>luc2P</i>	Hygromycin	E8481
★ <a href="#">pGL4.32 [Luc2P/NF-κB-RE/Hygro] Vector</a>	N	<i>luc2P</i>	Hygromycin	E8491
<a href="#">pGL4.33 [Luc2P/SRE/Hygro] Vector</a>	N	<i>luc2P</i>	Hygromycin	E1340
<a href="#">pGL4.34 [Luc2P/SRF-RE/Hygro] Vector</a>	N	<i>luc2P</i>	Hygromycin	E1350

Products may be covered by pending or issued patents or may have certain limitations. Please visit [www.promega.com](http://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.



[TechServ@promega.com](mailto:TechServ@promega.com)



[www.promega.com](http://www.promega.com)

★ Available in a stably-transfected GloResponse™ HEK293 Cell Line

[See Related Products.](#)

## Related Products

	Size	Cat. #
<b>Renilla Control Vectors</b>		
<a href="#">pGL4.73 [hRluc/SV40] Vector</a>	20µg	E6911
<a href="#">pGL4.74 [hRluc/TK] Vector</a>	20µg	E6921
<a href="#">pGL4.75 [hRluc/CMV] Vector</a>	20µg	E6931
<b>Stably-Transfected Response Element GloResponse™ HEK 293 Cell Lines</b>		
Each contains two vials of approximately 2 x 10 <sup>6</sup> hygromycin-resistant cells in freezing media.		
<a href="#">GloResponse CRE-<i>luc2P</i> HEK293 Cell Line</a>		E8500
<a href="#">GloResponse NFAT-RE-<i>luc2P</i> HEK293 Cell Line</a>		E8510
<a href="#">GloResponse NF-κB-RE-<i>luc2P</i> HEK293 Cell Line</a>		E8520
<b>Dual Reporter Assays (larger sizes available)</b>		
<a href="#">Dual-Luciferase® Reporter Assay System</a>	100 assays	E1910
5 Step assay requiring lysate production. Use in multi-well plates requires dual-injectors.		
<a href="#">Dual-Glo® Luciferase Assay System</a>	10ml	E2920
2 step assay that lyses cells directly. Use in multiwell plates does not require injectors.		

## Kinase Inhibitors

<a href="#">MEK Inhibitor U0126</a>	5mg	V1121
<a href="#">PD 98059 (MEK1 Inhibitor)</a>	5mg	V1191
<a href="#">SB 203580 (p38α, p38β, p38β2 inhibitor)</a>	1mg	V1161
<a href="#">LY 294002 (PI 3 Kinase Inhibitor)</a>	5mg	V1201

## Rapid, Transfection-Grade Plasmid Preps

<a href="#">PureYield™ Plasmid Miniprep System</a>	100 preps	A1223
<a href="#">PureYield™ Plasmid Midiprep System</a>	25 preps	A2492
<a href="#">PureYield™ Plasmid Maxiprep System</a>	10 preps	A2392

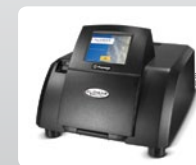
## Transfection Reagent

<a href="#">FuGENE® HD Transfection Reagent*</a>	1ml	E2311
	5 x 1ml	E2312

### GloMax® Multi+ Detection System

Need a luminometer?

Go to [www.promega.com/glomax](http://www.promega.com/glomax) to learn more and request a demo



Dual-Glo, Dual-Luciferase and GloMax are registered trademarks; GloResponse, RapidResponse and PureYield are trademarks of Promega Corporation. HighWire Press is a registered trademark of the Board of Trustees of the Leland Stanford Junior University

\* FuGENE HD is sold only for research use at non-profit entities. See terms of use at [www.promega.com/lul](http://www.promega.com/lul)

## Links to more information

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.



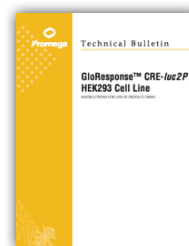
Paguio, A., *et al.* (2006) Using luciferase reporter assays to screen for GPCR modulators. *Cell Notes* **16**, 22-25.



Shultz, S., *et al.* (2008) Expanding applications of bioluminescence technology: Predictive bioassays for TNF $\alpha$  biologicals potency and dose-standardization studies. *Promega Notes* **100**, 19-21.



Schumacher, M., Dicato, M. and Diederich, M. (2008) Improved response ratio for NF- $\kappa$ B inhibition analysis using new luciferase reporter vector (pGL4.32 [*luc2P/NF- $\kappa$ B-RE/Hygro*]). *Cell Notes* **21**, 18-19.



pGL4.29 [*luc2P/CRE/Hygro*] Vector  
Product Protocol



pGL4.30 [*luc2P/NFAT-RE/Hygro*] Vector  
Product Protocol



pGL4.32 [*luc2P/NF- $\kappa$ B-RE/Hygro*] Vector  
Product Protocol



pGL4.33 [*luc2P/SRE/Hygro*] Vector  
Product Protocol



pGL4.34 [*luc2P/SRF-RE/Hygro*] Vector  
Product Protocol



GloResponse™ CRE-*luc2P* HEK293  
Cell Line Technical Bulletin



GloResponse™ NFAT-RE-*luc2P* HEK293  
Cell Line Technical Bulletin



GloResponse™ NF- $\kappa$ B-RE-*luc2P* HEK293  
Cell Line Technical Bulletin

