Dual Luminescent Reporter Assay Tools

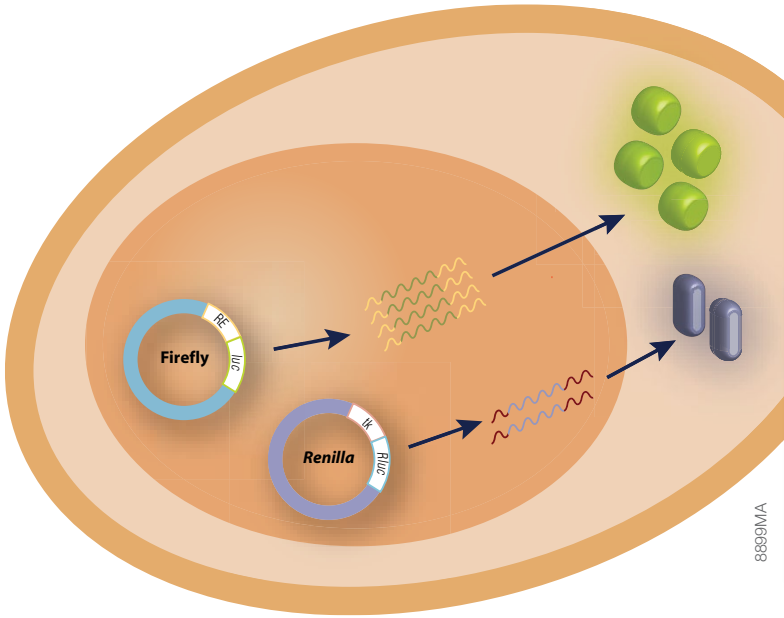
Dual-Glo® and Dual-Luciferase® Assays for firefly and *Renilla* luciferases

Harnessing the power of bioluminescence to understand cellular physiology

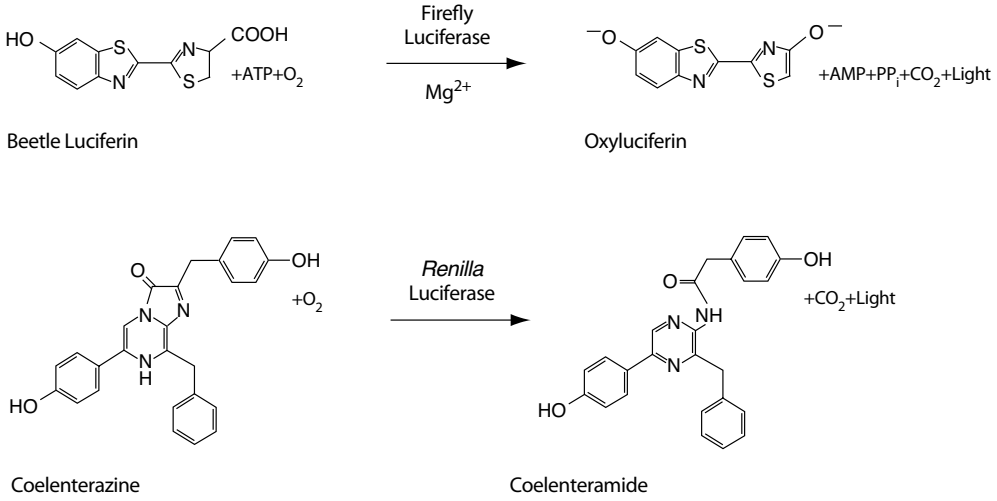
Promega

Tap screen to start

Dual-Luciferase Assay Principle



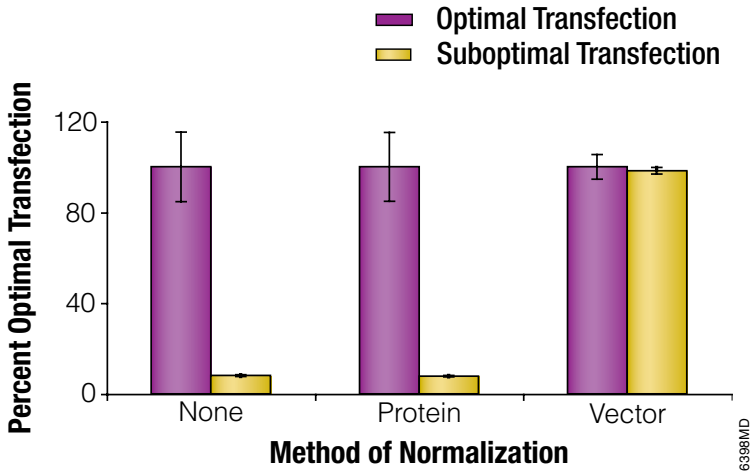
Distinct chemistries allow separate measurement of each luciferase through manipulation of the reaction conditions. The Stop & Glo® Reagents quench firefly luminescence and provide the substrate for *Renilla* luciferase.



- The experimental construct is firefly luciferase, expression will vary with treatment.
- The control construct is *Renilla* luciferase, expression will vary little with treatment.
- Both firefly and *Renilla* luciferase activities are measured in the same sample.

Comparing ratio of firefly:*Renilla* luciferases will normalize for effects from:

- Suboptimal transfection
- Cytotoxic effects



Dual-Luciferase Assay Options:

Dual-Luciferase® Assay System

5 steps

1. Remove media
2. Lyse cells with Passive Lysis Buffer
3. Transfer lysate to tube or plate well
4. Add Luciferase Assay Reagent II and measure Firefly luciferase activity
   ($t_{1/2}$ = 9 min)
5. Add Stop & Glo® Reagent and measure *Renilla* luciferase activity.
   ($t_{1/2}$ = 2 min)

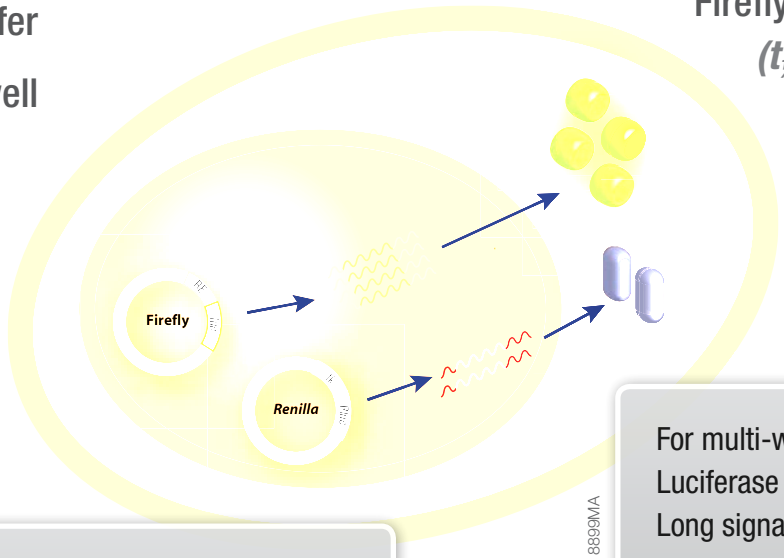
For multi-well plate assays, Dual-Luciferase Assay System short signal half-life requires use of a dual injector luminometer.

Dual-Glo® Luciferase Assay System

2 steps

1. Add Dual-Glo Luciferase Reagent and measure Firefly luciferase activity
   ($t_{1/2}$ = 2 hours)
2. Add Dual-Glo Stop & Glo® Reagent and measure *Renilla* luciferase activity.
   ($t_{1/2}$ = 2 hours)

For multi-well plate assays, Dual-Glo Luciferase System does not require injectors. Long signal half-life allows batch processing.



Ordering Information

Product	Size	Cat. #
Dual-Glo® Luciferase Assay System Contains indicated volumes of both Dual-Glo Luciferase Reagent and Dual-Glo Stop & Glo® Reagent. Match reagent additions to the culture volume of the cells. For example, if cells are cultured in 100µl, add 100µl of Dual-Glo Luciferase Reagent followed by 100µl of Dual-Glo Stop & Glo Reagent. Assay is scalable to 96-, 384-, and 1,536-well plates.	10 ml	E2920
	100 ml	E2940
	10 x 100 ml	E2980
Dual-Luciferase® Reporter Assay System	100 assays	E1910
Dual-Luciferase Reporter Assay System 10 pack	10 x 100 assays	E1960
Dual-Luciferase Reporter 1000 Assay System	1000 assays	E1980

Products may be covered by pending or issued 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.

Dual-Glo System Technical Manual

DLR™ System Technical Manual

DLR™ 1000 System Technical Manual

Promega Catalog

TechServ@promega.com

www.promega.com

Related Products

	Size	Cat. #
Basic pGL4 Firefly Luciferase Vector		
pGL4.10 [luc2] *Vector*	20µg	E6651
Basic pGL4 Renilla Luciferase Control Vector		
pGL4.74 [*hRluc*/TK] Vector	20µg	E6921
Pre-designed Signal Transduction Pathway Vectors		
pGL4.29 [luc2P/CRE/Hygro] Vector	20µg	E8471
pGL4.30 [*luc2P*/NFAT-RE/Hygro] Vector	20µg	E8481
pGL4.32 [*luc2P*/NF-kB-RE/Hygro] Vector	20µg	E8491
pGL4.33 [*luc2P*/SRE/Hygro] Vector	20µg	E1340
pGL4.34 [*luc2P*/SRF-RE/Hygro] Vector	20µg	E1350
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
	5 x 1ml	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 and Further Information

Sherf, B.A., *et al.* (1996) Dual-Luciferase™ Reporter Assay: An advanced co-reporter technology integrating firefly and Renilla luciferase assays. *Promega Notes* **57**, 2.

Hannah, R.R., Jennens-Clough, M.L. and Wood, K.V. (1998) Rapid luciferase reporter assays systems for high throughput studies. *Promega Notes* **65**, 9.

Hawkins, E., *et al.* (2002) Dual-Glo™ Luciferase Assay System: Convenient dual reporter measurements in 96- and 384-well plates. *Promega Notes* **81**, 22-26.

Screens performed with the Dual-Luciferase® Reporter Assay System.

Hawkins, E., *et al.* (2003) Increased Renilla luciferase sensitivity in the Dual-Luciferase® Reporter Assay System. *Promega Notes* **85**, 31-33.

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.

Allard, S.T.M. and Kopish, K. (2008) Luciferase Reporter Assays: Powerful, adaptable tools for cell Biology research. *Cell Notes* **21**, 23-26.

Protocols & Applications Guide: *Bioluminescent Reporters*.

Citations

Dual-Glo® System
HighWire Press®

Dual-Luciferase® System
HighWire Press