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
**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

![Chemical Structures](image)

**Method of Normalization**

<table>
<thead>
<tr>
<th>Method of Normalization</th>
<th>Percent Optimal Transfection</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>120</td>
</tr>
<tr>
<td>Protein</td>
<td>80</td>
</tr>
<tr>
<td>Vector</td>
<td>40</td>
</tr>
</tbody>
</table>

**Optimal Transfection**

**Suboptimal Transfection**
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 \((t_{1/2} = 9 \text{ min})\)
5. Add Stop & Glo® Reagent and measure Renilla luciferase activity.
\((t_{1/2} = 2 \text{ min})\)

**Dual-Glo® Luciferase Assay System**

2 steps

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

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

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

## Product

<table>
<thead>
<tr>
<th>Product</th>
<th>Size</th>
<th>Cat. #</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dual-Glo® Luciferase Assay System</strong></td>
<td>10 ml</td>
<td>E2920</td>
</tr>
<tr>
<td>Contains indicated volumes of both Dual-Glo Luciferase Reagent and Dual-Glo Stop &amp; 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 &amp; Glo Reagent. Assay is scalable to 96-, 384-, and 1,536-well plates.</td>
<td>100 ml</td>
<td>E2940</td>
</tr>
<tr>
<td></td>
<td>10 x 100 ml</td>
<td>E2980</td>
</tr>
<tr>
<td><strong>Dual-Luciferase® Reporter Assay System</strong></td>
<td>100 assays</td>
<td>E1910</td>
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<tr>
<td><strong>Dual-Luciferase Reporter Assay System 10 pack</strong></td>
<td>10 x 100 assays</td>
<td>E1960</td>
</tr>
<tr>
<td><strong>Dual-Luciferase Reporter 1000 Assay System</strong></td>
<td>1000 assays</td>
<td>E1980</td>
</tr>
</tbody>
</table>

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.
# Related Products

<table>
<thead>
<tr>
<th>Size</th>
<th>Cat. #</th>
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<tbody>
<tr>
<td>20µg</td>
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</tbody>
</table>

## Basic pGL4 Firefly Luciferase Vector
- **pGL4.10 [luc2] Vector**
  - Size: 20µg
  - Cat. #: E6651

## Basic pGL4 Renilla Luciferase Control Vector
- **pGL4.74 [hRluc/TK] Vector**
  - Size: 20µg
  - Cat. #: E6921

## Pre-designed Signal Transduction Pathway Vectors
- **pGL4.29 [luc2P/CRE/Hygro] Vector**
  - Size: 20µg
  - Cat. #: E8471
- **pGL4.30 [luc2P/NFAT-RE/Hygro] Vector**
  - Size: 20µg
  - Cat. #: E8481
- **pGL4.32 [luc2P/NF-kB-RE/Hygro] Vector**
  - Size: 20µg
  - Cat. #: E8491
- **pGL4.33 [luc2P/SRE/Hygro] Vector**
  - Size: 20µg
  - Cat. #: E1340
- **pGL4.34 [luc2P/SRF-RE/Hygro] Vector**
  - Size: 20µg
  - Cat. #: E1350

## Rapid, Transfection-Grade Plasmid Preps
- **PureYield® Plasmid Miniprep System**
  - Size: 100 preps
  - Cat. #: A1223
- **PureYield® Plasmid Midiprep System**
  - Size: 25 preps
  - Cat. #: A2492
- **PureYield® Plasmid Maxiprep System**
  - Size: 10 preps
  - Cat. #: A2392

## Transfection Reagent
- **FuGENE® HD Transfection Reagent**
  - Size: 1ml
  - Cat. #: E2311
  - Size: 5 x 1ml
  - Cat. #: E2312

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


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


