

BacTiter-GloTM

Microbial Cell Viability Assay

One Reagent...

Simple

Sensitive

Fast



Promega

BacTiter-Glo™ Microbial Cell Viability Assay

The BacTiter-Glo™ Microbial Cell Viability Assay^(a,b) is a homogeneous luminescent method for determining the number of viable microbial cells in culture based on quantitation of the ATP present. ATP is an indicator of metabolically active cells. The procedure involves adding a single reagent (BacTiter-Glo™ Reagent) directly to microbial cells in medium and measuring luminescence (Figure 1). The assay utilizes a proprietary reagent formulation containing a thermostable luciferase, Ultra-Glo™ Recombinant Luciferase, to extract ATP from a variety of organisms and support a stable “glow-type” luminescent signal.

Simplify

The homogeneous “add, mix, measure” format reduces the number of handling steps to fewer than that required for similar ATP assays (Figure 1). No separate lysis step, and no injectors are required. Stable 30-minute half-life allows consecutive processing of plates.

Increase Sensitivity

Measure ATP from as few as 10 bacterial cells with linearity over a dynamic range of more than 5 orders of magnitude (Figure 2); 1,000-fold more sensitive than O.D. readings.

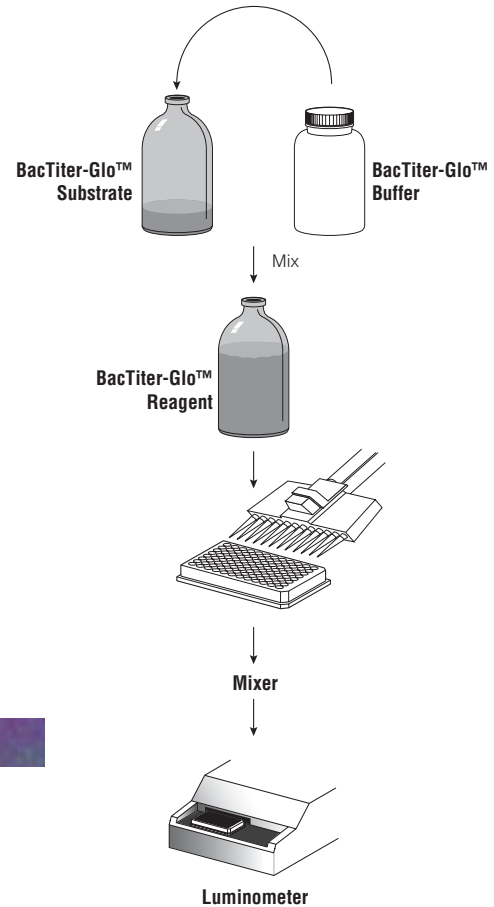


Figure 1. Diagram of the BacTiter-Glo™ Microbial Cell Viability Assay protocol.

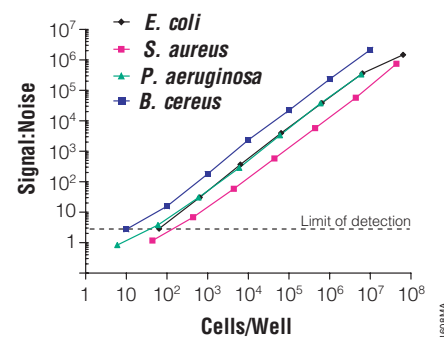


Figure 2. Superior sensitivity and linearity over 5 orders of magnitude.

Microbial Cell Viability Assay

Achieve Quick Results

Record data in 5 minutes or less after adding and mixing reagent. Sensitivity allows you to detect growth immediately after inoculation for in depth evaluation of microbial growth (Figure 3).

Gain Flexibility

Use with various multiwell or single-use formats. The sensitivity and signal stability make the assay highly amenable for high-throughput screening. This is reflected by excellent Z'-factor values of 0.90 and 0.87 for 96-well and 384-well formats, respectively (Figure 4).

Data can be recorded by luminometer or CCD device.

Use for Range of Applications

- Screening for antimicrobial compounds (Figure 5)
- Evaluating antimicrobial compound activity
- Examining bacterial growth with extended sensitivity and range
- Rapidly detecting microbial contamination
- Quantifying bacteria for DNA purification

BacTiter-Glo™ is designed for either single-use or multi-well plate formats for high-throughput screening.

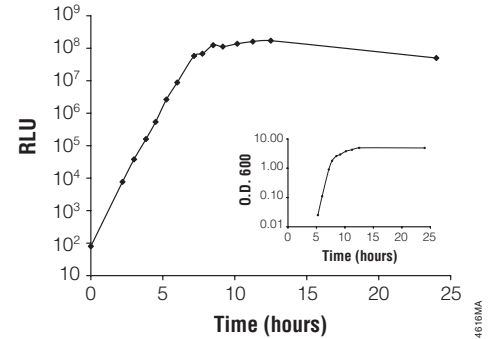


Figure 3. Evaluate bacterial growth immediately after inoculation using the BacTiter-Glo™ Assay. When measuring growth by O.D., the first significant measurement (0.025 O.D. with *E. coli*) did not occur until 5 hours after inoculation.

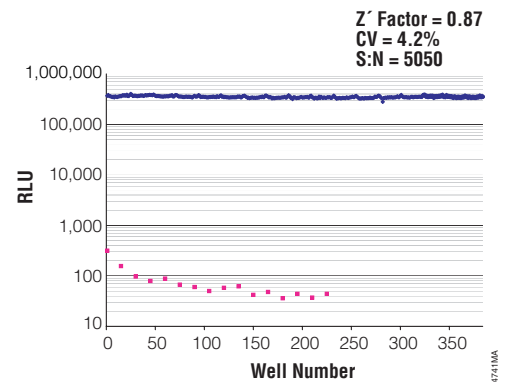


Figure 4. BacTiter-Glo™ Assay performed in a 384-well plate with *E. coli*. The signal was consistent across the entire plate and %CV, Z' factor and signal-to-noise ratios were within acceptable ranges for screening.

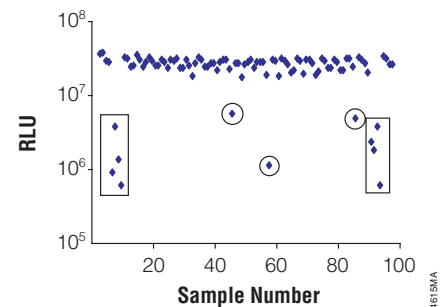


Figure 5. Screening for antimicrobial compounds using the BacTiter-Glo™ Assay. All positive controls of standard antibiotics (boxed points; wells 5-8 and 89-92 consisting of tetracycline, ampicillin, gentamicin, chloramphenicol, oxacillin, kanamycin, piperacillin and erythromycin) and three LOPAC compounds (circled points; wells 9-88) exhibited significant anti-*S. aureus* activity.

Detect a Variety of Organisms

The assay detects a variety of bacteria and yeast (Table 1).

Table 1. Organisms Successfully Tested with the BacTiter-Glo™ Assay.

| Gram- Bacteria | Gram+ Bacteria | Others |
|--|--|--|
| <i>Escherichia coli</i> | <i>Staphylococcus aureus</i> ² | <i>Saccharomyces cerevisiae</i> ¹ |
| <i>Pseudomonas aeruginosa</i> ² | <i>Enterococcus faecalis</i> ² | <i>Candida albicans</i> ² |
| <i>Enterobacter cloacae</i> | <i>Streptococcus pneumoniae</i> ² | |
| <i>Flavobacterium okeanoicoles</i> | <i>Bacillus subtilis</i> ¹ | |
| <i>Haemophilus influenzae</i> ² | <i>Bacillus cereus</i> ³ | |
| <i>Proteus vulgaris</i> | <i>Arthrobacter luteus</i> | |
| <i>Salmonella typhimurium</i> | | |
| <i>Yersinia enterocolitica</i> ³ | | |
| <i>Francisella philomiragia</i> ³ | | |

¹Model organisms

²Drug discovery

³Biodefense

Ordering Information

| Product | Size | Cat.# |
|---|------------|-------|
| BacTiter-Glo™ Microbial Cell Viability Assay* | 10ml | G8230 |
| | 10 x 10ml | G8231 |
| | 100ml | G8232 |
| | 10 x 100ml | G8233 |

Using 100µl of BacTiter-Glo™ Reagent per assay in a 96-well format, Cat.# G8230 contains sufficient reagents for 100 assays; Cat.# G8231, 1,000 assays; Cat.# G8232, 1,000 assays, and Cat.# G8233, 10,000 assays. Using 25µl of BacTiter-Glo™ Reagent per assay in a 384-well format, Cat.# G8230 contains sufficient reagents for 400 assays; Cat.# G8231, 4,000 assays; Cat.# G8232, 4,000 assays; and Cat.# G8233, 40,000 assays.

*For Laboratory Use.

(a) U.S. Pat. No. 6,602,677, Australian Pat. No. 754312 and other patents pending.

(b) The method of recombinant expression of *Coleoptera* luciferase is covered by U.S. Pat. Nos. 5,583,024, 5,674,713, and 5,700,673.

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Veritas is a trademark of Turner Biosystems.

Related Products

| Instrumentation | |
|---------------------------------|-------|
| Product | Cat.# |
| Veritas™ Microplate Luminometer | E6501 |

Cell Viability and Apoptosis of Mammalian Cells

| Product | Cat.# |
|---|-------|
| CellTiter-Glo® Luminescent Cell Viability Assay | G7570 |
| Caspase-Glo™ 3/7 Assay* | G8090 |

*For Laboratory Use.

Purification of plasmid DNA from bacteria

| Product | Cat.# |
|--------------------------------------|-------|
| PureYield™ Plasmid Midi Prep Systems | A2492 |

