LIVE/DEAD® *Bac*Light™ Bacterial Viability Kits

Sensitive, single-step, fluorescence-based assays

- → Complete in 15 minutes with no wash steps
- → Compatible with fluorescence-based microscopes and microplate readers, flow cytometers, and fluorometers
- → Discriminate as little as 1–10% live or dead cells in a mixed population

Rapid, reliable assessment of bacterial viability

LIVE/DEAD® *Bac*Light™ Bacterial Viability Kits provide sensitive, single-step, fluorescence-based assays for bacterial cell viability.[1–4] These assays can be completed in minutes, require no wash steps, and can be applied to bacteria in suspension or trapped on filters. The *Bac*Light™ kits are well suited for use with a fluorescence microscope or in quantitative assays employing a fluorescence microplate reader, flow cytometer, or fluorometer.

The LIVE/DEAD® *Bac*Light™ Bacterial Viability Kits employ two nucleic acid stains—green-fluorescent SYTO® 9 stain and red-fluorescent propidium iodide stain. These stains differ in their ability to penetrate healthy bacterial cells. When used alone, SYTO® 9 stain labels both live and dead bacteria. In contrast, propidium iodide penetrates only bacteria with damaged membranes, reducing SYTO® 9 fluorescence when both dyes are present. Thus, live bacteria with intact membranes fluoresce green, while dead bacteria with damaged membranes fluoresce red (Figures 1 and 2). Live and dead bacteria can be viewed

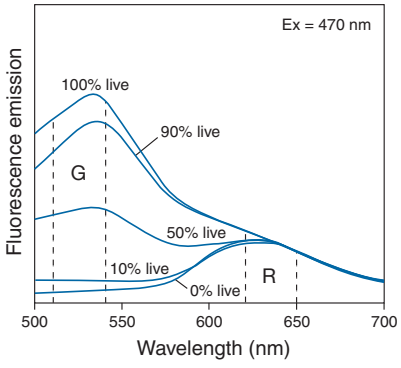

Figure 1—Viability analysis of bacterial suspensions. The viability of different proportions of live and isopropanol-killed *Escherichia coli* was assessed using the reagents in the LIVE/DEAD® *Bac*Light™ Bacterial Viability Kits. Live bacteria are stained fluorescent green (**G**) by SYTO® 9 stain, and dead bacteria are stained fluorescent red (**R**) by propidium iodide. Bacterial suspensions simultaneously incubated in the two stains and then excited at 470 nm exhibit a fluorescence spectral shift from green to red as the percentage of live bacteria in the sample is decreased.

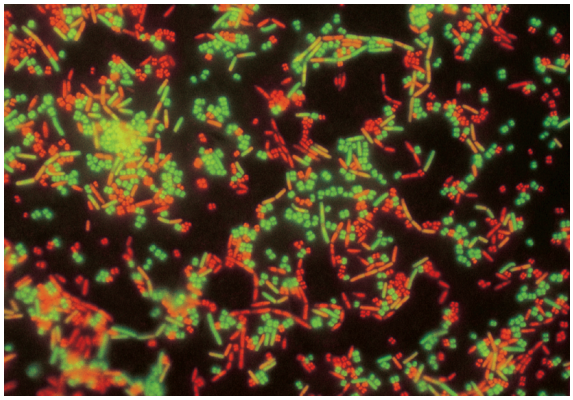

Figure 2—Viability of a mixture of *Micrococcus luteus* and *Bacillus cereus* assessed using reagents in the LIVE/DEAD® *Bac*Light™ Bacterial Viability Kits.

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separately or simultaneously by fluorescence microscopy with suitable optical filter sets. Mounting oil is supplied for viewing bacteria on filter membranes. The *Bac*Light™ assay has been used on many gram-negative and gram-positive bacteria, mycoplasmas, yeasts, biofilms, and protozoa.

Four kits for greater flexibility

LIVE/DEAD® *Bac*Light™ Bacterial Viability Kits contain the SYTO® 9 and propidium iodide nucleic acid stains supplied either premixed at two different proportions in solution (L7007) or as separate vials of the two stains in solution (L7012). For added convenience, a third kit format (L13152) contains the same two nucleic acid stains dried and premeasured into separate polyethylene transfer pipet applicator sets. This kit does not require organic solvents or refrigerated storage. A fourth kit format (L34856) is specially designed for flow cytometry use, and allows researchers to reliably distinguish and quantitate live and dead bacteria even in a mixed population containing a range of bacterial types. In addition to SYTO® 9 stain and propidium iodide, this kit includes a calibrated suspension of microspheres for accurate sample volume measurements.

References

1. Berney, M. et al. (2007) *Appl Environ Microbiol* 73:3283–3290.
2. O'Neill, A.J. et al. (2004) *J Antimicrob Chemother* 54:1127–1129.
3. Filoche, S.K. et al. (2007) *J Microbiol Methods* 69:489–496.
4. Laflamme, C. et al. (2004) *J Appl Microbiol* 96:684–692.

Ordering information

Product	Quantity	Cat. no.
LIVE/DEAD® *Bac*Light™ Bacterial Viability Kit, for microscopy	1,000 assays	L7007
LIVE/DEAD® *Bac*Light™ Bacterial Viability Kit, for microscopy and quantitative assays	1,000 assays	L7012
LIVE/DEAD® *Bac*Light™ Bacterial Viability and Counting Kit, for flow cytometry	100 assays	L34856
LIVE/DEAD® *Bac*Light™ Bacterial Viability Kit, 10 applicator sets	500 assays	L13152
Related products		
LIVE/DEAD® *Fungal*Light™ Yeast Viability Kit, for flow cytometry	1 kit	L34952
LIVE *Bac*Light™ Bacterial Gram Stain Kit, for microscopy and quantitative assays	1,000 assays	L7005
SYTO® 9 Green Fluorescent Nucleic Acid Stain	100 µl	S34854