Revised: August 23, 2023

Product Information

BactoView™ Dead Stains, 500X in Water

Product List

Cat. No.	Unit Size	Product Name	Ex/Em (nm) (with DNA)	Detection Channel*
40107-T	20 uL	BactoView™ Dead 500/515	497/515	FITC
40107	100 uL			
40108-T	20 uL	BactoView™ Dead 560/570	559/570	Rhodamine, PI, PE
40108	100 uL			
40109-T	20 uL	BactoView™ Dead 570/585	572/583	Rhodamine, PI, PE
40109	100 uL			
40110-T	20 uL	BactoView™ Dead 600/615	603/613	Texas Red® or PE-Texas Red®
40110	100 uL			
40111-T	20 uL	BactoView™ Dead 655/670	653/671	Cy®5, APC
40111	100 uL			
40112-T	20 uL	BactoView™ Dead 690/710	683/707	Cy®5.5
40112	100 uL			
40113-T	20 uL	BactoView™ Dead 760/780	759/780	Cy®7, APC-Cy®7
40113	100 uL			

* May show crosstalk in lower wavelength detection channels. Perform single-stain controls before combining the stains with other probes.

Storage and Handling

Store at -20°C, protect from light. Products are stable for at least 12 months from date of receipt when stored as recommended.

Spectral Properties

BactoView™ Dead stains are named for their absorbance/emission maxima (See Product List). See Figure 1 (page 2) for dye spectra.

Product Description

BactoView™ Dead Stains are novel DNA binding dyes for live/dead discrimination in bacteria. These bright fluorogenic DNA binding dyes are cell membrane impermeant, so they selectively stain dead bacteria with compromised cell membranes without the need to wash after staining.

Traditional vital nucleic acid dyes like propidium iodide or ethidium homodimer are efficiently excluded from live gram-negative bacteria, which have an outer membrane protecting the cell wall. But these dyes often are taken up by live gram-positive bacteria that lack an outer membrane, resulting in high background in live cells and poor live/dead discrimination. BactoView™ Dead Stains have novel chemical structures that are efficiently excluded from both gram-positive and gram-negative strains, for highly selective live/dead discrimination. In addition to staining dead bacteria, BactoView™ Dead Stains also stain *Bacillus subtilis* endospores, but with dimmer fluorescence. BactoView™ Dead Stains have low fluorescence until they bind DNA, allowing bright, no-wash staining. The stains are available with a wide selection of emission wavelengths ranging from green to near-infrared, for microscopy or flow cytometry analysis.

See Related Products for our BactoView™ Viability Kits, which include a choice of red or far-red BactoView™ Dead Stain for dead bacteria and BactoView™ Viability Green Counterstain to stain all bacteria. BactoView™ Dead Stains also can be combined with fluorescent Gram stains like our CF® Dye WGA Conjugates (see Related Products). We also offer BactoView™ Live Green and BactoView™ Live Red for staining live bacteria.

Note that BactoView™ Stains cannot be used to distinguish bacteria from eukaryotic cells, because they will stain other cell types as well. For staining mammalian cells, see our NucSpot® Nuclear Stains for live/dead discrimination or nuclear counterstaining of fixed mammalian cells. For live nuclear staining of mammalian cells, see our NucSpot® Live Stains (see Related Products).

Considerations

DNA dyes can interfere with one another when co-stained or co-incubated. When combining BactoView™ Dead with other stains, particularly other DNA dyes, we recommend titrating the concentration of each stain separately and together to find the optimal concentration and staining protocol (for example, co-incubation of the stains vs. sequential staining).

Bacteria Staining Protocol

This protocol has been developed for staining laboratory bacteria strains in liquid culture. Optimization may be needed for other sample types.

1. Grow your cells in the appropriate growth medium and growth conditions. We typically grow bacteria overnight at 37°C.
2. If desired, collect the cells by centrifugation and resuspend in a buffer for staining. BactoView™ Dead Stains can be used to stain cells in growth medium, as well as in buffers like PBS, or in 150 mM NaCl.
3. Add BactoView™ Dead Stain to the bacterial sample at a final concentration of 1X. For example, if the sample volume is 500 uL, add 1 uL of BactoView™ Dead Stain and mix well.

   Notes:

   a. For smaller sample volumes, you may prepare an intermediate dilution of the stain. For example, add 1 uL of BactoView™ Dead Stain to 9 uL of buffer, mix well, and then add 1 uL of this intermediate dilution to 50 uL of sample.

   b. Dye concentration may be optimized for different cell or sample types.
4. Incubate at room temperature or 37°C for 30 minutes, in the dark.
5. Optional: Collect cells by centrifugation and resuspend them in a fresh buffer of your choice.
6. For fluorescence microscopy, you may mount 5 uL of the sample on a slide with an 18 mm coverslip. Alternatively, you may pipet 100 uL of sample into a 96-well optical bottom plate. Image cells in the appropriate detection channel (see Product List).

   Note: Coating the slide or wells with CellTak™ adhesive to immobilize the cells can facilitate imaging of bacteria by microscopy.
7. For flow cytometry, dilute the sample in FACS wash buffer (PBS + 1% serum) or similar buffer. You may need to dilute the sample 10-fold or more to achieve the desired flow rate. Detect cells in the appropriate detection channel (see Product List).

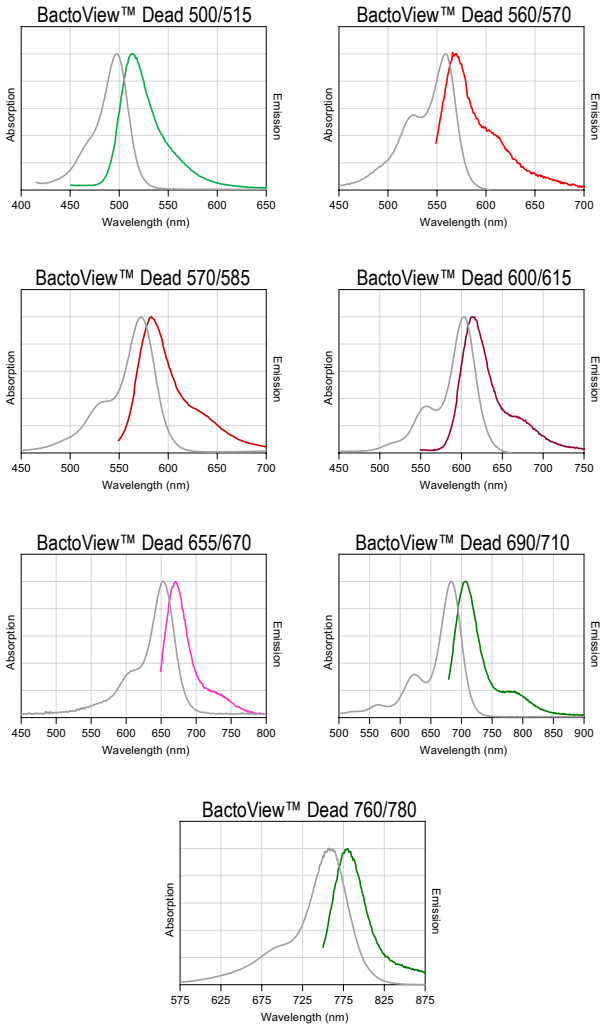

Figure 1. BactoView™ Dead absorbance and emission spectra.

Related Products

Cat. No.	Product
32019, 32020	BactoView™ Viability Kits
40101	BactoView Live™ Red
40102	BactoView Live™ Green
40083... 41038	NucSpot® Nuclear Stains for Live/Dead Discrimination or Fixed Cell Counterstaining
40081, 40082	NucSpot® Live Nuclear Stains for Imaging all Cells in Live Cultures
29021... 29077	CF® Dye Wheat Germ Agglutinin (WGA)
30027	Viability/Cytotoxicity Assay for Bacteria Live & Dead Cells
32000	Live Bacteria Gram Stain Kit
40069	PMAxx™ Dye for Viability PCR, 20 mM in Water
40013	PMA Dye for Viability PCR
40019	PMA Dye for Viability PCR, 20 mM in Water
E90006	PMA-Lite™ 2.0 LED Photolysis Device
31033-31037; 31050, 31051, 31053	Real-Time PCR Bacterial Viability Kits (choose from kits for 8 bacterial strains)
32002... 32018	Live-or-Dye™ Fixable Viability Staining Kits
70020	SynaptoGreen™ C4 Membrane Stain
70021	SynaptoRed™ C2 Membrane Stain
10063	CTC, Bacterial Respiration Dye
31062	Yeast Vitality Staining Kit
31063	Yeast Viability Staining Kit
31064	Yeast Fixable Live/Dead Staining Kit
30002	Viability/Cytotoxicity Assay Kit for Animal Live & Dead Cells

Please visit our website at www.biotium.com for information on our life science research products, including environmentally friendly EvaGreen® qPCR master mixes, fluorescent CF® Dye antibody conjugates and reactive dyes, apoptosis reagents, fluorescent probes, and kits for cell biology and microbiology research.