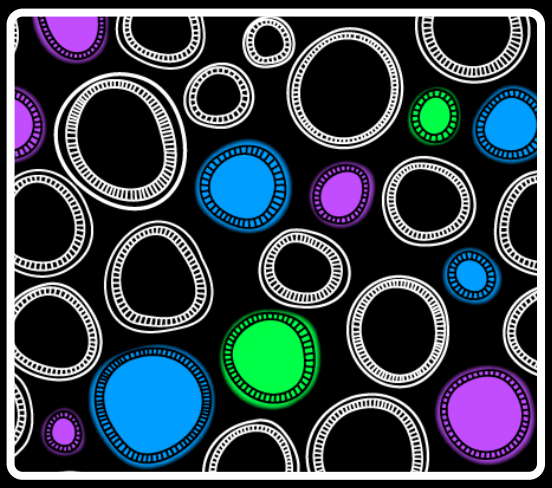


Live-or-Dye™ Fixable Viability Stains

Fixable dead cell stains in a wide selection of colors

14 Bright and Fixable Viability Stains for Easy Panel Design

Live-or-Dye™ Fixable Viability Stains offer bright and stable labeling of dead cells and are most widely used for excluding dead cells from analysis in flow cytometry. Labeling is extremely stable, allowing the cells to be fixed and permeabilized without loss of fluorescence or dye transfer between cells. Biotium offers a total of 14 Live-or-Dye™ colors from blue to near-IR for maximal flexibility when designing panels (Fig. 1). The dyes are also suitable for fluorescence microscopy (Fig. 2).

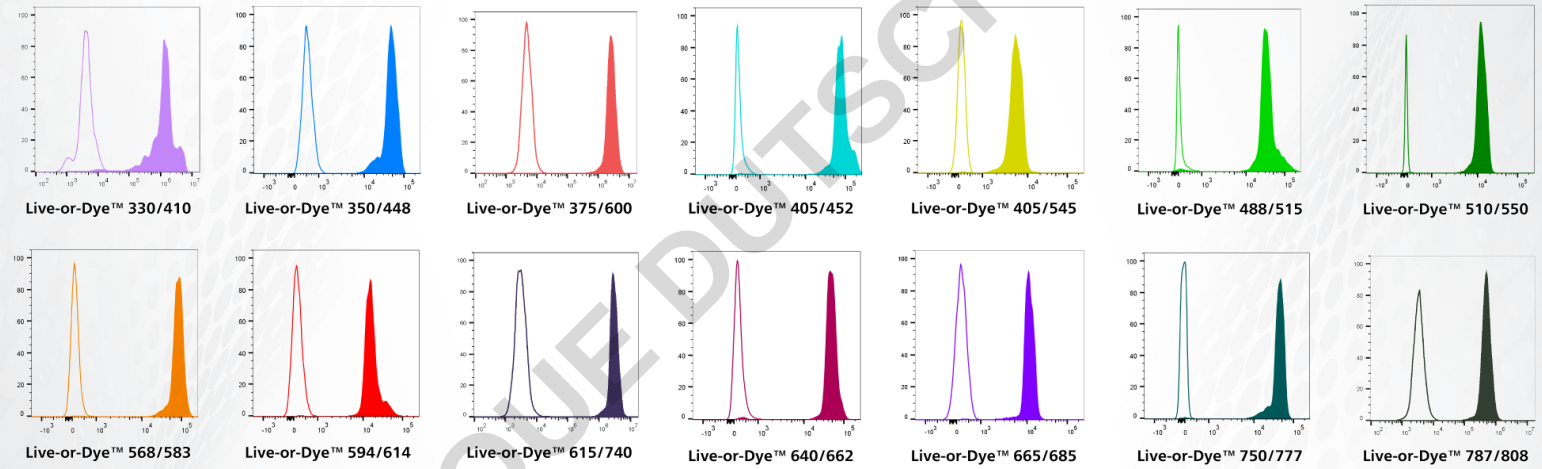


Figure 1. Discrimination of live and dead cells by flow cytometry using Live-or-Dye™ Fixable Viability Stains. Heat killed cells (solid peaks) showed much higher fluorescence intensity compared to live cells (white peaks), allowing the two populations to be clearly distinguished.

Live-or-Dye™ Advantages

- **Variety:** Wide selection of 14 dye colors
- **Bright:** Excellent separation between live and dead cells
- **Stable:** No loss of signal after fixation and permeabilization
- **Flexible:** Can be used for flow cytometry or microscopy
- **Compatible:** Can co-stain with antibodies and other cellular stains

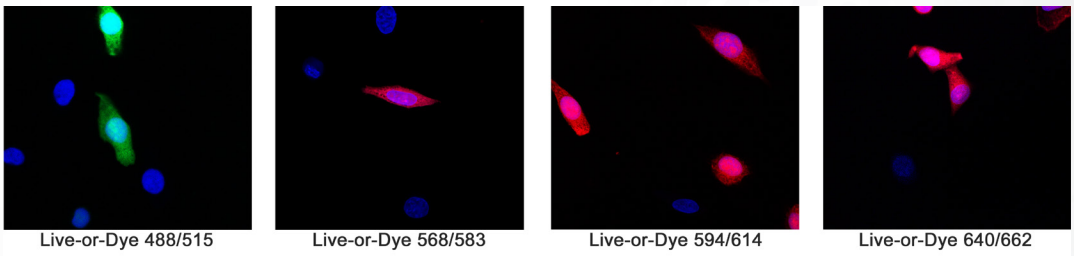


Figure 2. Discrimination of live and dead cells by microscopy, using Live-or-Dye™ Fixable Viability Stains. HeLa cells were treated with ethanol to result in 10-25% cell death and stained with the indicated Live-or-Dye™ stain. Nuclei in both live and dead cells were then stained with Hoechst (blue). Killed cells show bright Live-or-Dye™ fluorescence staining, compared to no staining seen in live cells.

Sampler Kits Designed for Traditional and Spectral Flow Cytometry

Biotium offers two Live-or-Dye™ sampler kits, each containing five different dye colors for excitation from popular flow cytometry laser lines. The Live-or-Dye™ Sampler Kit, Standard (32016) is designed for use on the most common flow cytometry laser and filter configurations. The Live-or-Dye™ Sampler Kit, Spectral (32017) includes spectrally unique stains designed specifically to take advantage of enhanced multiplexing by spectral flow cytometry (see Table 2 on the back).

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Live-or-Dye NucFix™ Red Viability Stain

Live-or-Dye NucFix™ Red is a unique, cell membrane-impermeant dye that specifically stains the nuclei of dead cells (Fig. 3). Unlike other commonly used nuclear viability stains such as propidium iodide or DRAQ7™, NucFix™ labeling is extremely stable, allowing the cells to be fixed and permeabilized without loss of fluorescence or dye transfer between cells.

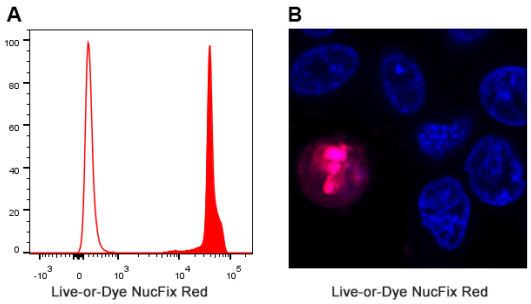


Figure 3. Discrimination of live and dead cells using the Live-or-Dye NucFix™ Red Fixable Viability Stain. A. Live or heat-killed Jurkat cells were stained with Live-or-Dye NucFix™ Red. Heat-killed cells (solid peak) compared to live cells (white peak). B. HeLa cells were treated with ethanol to result in 10-25% cell death and stained with NucFix™ Red together with Hoechst (blue) to label all cell nuclei.

Live-or-Dye NucFix™ Red Features

- Nuclear stain highly specific for dead cells
- Stable and fixable labeling
- For dead cell staining in mammalian cells and gram-negative bacteria
- Can be used as a viability stain in 3D culture models and spheroids

Table 1. Spectral Properties and Ordering Information

Cat. # (200 reactions)	Cat. # (50 reactions)	Viability Dye	Laser Line (nm)	Optimal Detection Channels	Abs/Em Maxima (nm)	Validated Applications
32018	32018-T	Live-or-Dye™ 330/410	355, 375	Spectral scan, BUV395	310/410	Flow cytometry, Spectral flow
32002	32002-T	Live-or-Dye™ 350/448	355, 375	DAPI	347/448	Flow cytometry
32014	32014-T	Live-or-Dye™ 375/600	355, 375, 405	Spectral scan, BUV615, BV605	373/595	Flow cytometry, Spectral flow
32003	32003-T	Live-or-Dye™ 405/452	405	Pacific Blue®, BV421, BV450	408/452	Flow cytometry
32009	32009-T	Live-or-Dye™ 405/545	405	AmCyan, BV510	395/545	Flow cytometry
32004	32004-T	Live-or-Dye™ 488/515	488	FITC	490/515	Flow cytometry, Microscopy
32012	32012-T	Live-or-Dye™ 510/550	488, 532	Spectral scan	516/549	Flow cytometry, Spectral flow
32005	32005-T	Live-or-Dye™ 568/583	488, 532, 561	PE, PI	562/583	Flow cytometry, Microscopy
32006	32006-T	Live-or-Dye™ 594/614	488, 532, 561	PI, PE-CF®594, PE-Texas Red®	593/614	Flow cytometry, Microscopy
32015	32015-T	Live-or-Dye™ 615/740	633-640	Spectral scan, APC-Cy®7	614/743	Flow cytometry, Spectral flow
32007	32007-T	Live-or-Dye™ 640/662	633-640	APC	642/662	Flow cytometry, Microscopy
32013	32013-T	Live-or-Dye™ 665/685	633-640, 785	Spectral scan, AF700	667/685	Flow cytometry, Spectral flow
32008	32008-T	Live-or-Dye™ 750/777	633, 640	APC-Cy®7	755/777	Flow cytometry
32011	32011-T	Live-or-Dye™ 787/808	785, 808	APC-Cy®7, IR800	783/808	Flow cytometry
32010	32010-T	Live-or-Dye NucFix™ Red	488, 532	PE-Texas Red®	520/510	Flow cytometry, Microscopy

Table 2. Live-or-Dye™ Sampler Kits

Cat. #	Kit Name	Included Dyes: Ex/Em	Detection Channels	Application
32016	Live-or-Dye™ Fixable Viability Sampler Kit, Standard	• 350/448 • 405/545 • 488/515 • 568/583 • 640/662	• DAPI • AmCyan, Bv510 • FITC • PE, PI • APC	Most standard flow cytometry laser and filter configurations
32017	Live-or-Dye™ Fixable Viability Sampler Kit, Spectral	• 350/448 • 375/600 • 510/550 • 615/740 • 665/685	Spectral Scan	Spectral flow cytometry, fills gaps between common fluorophores



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