Live-or-Dye™ Fixable Viability Staining Kits

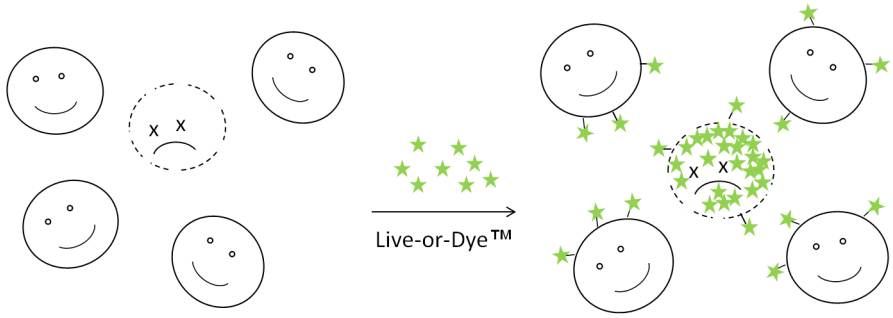

Figure 1. Principle of live/dead cell discrimination using Live-or-Dye™ Fixable Viability Stains

- **Bright:** *Made using Biotium's superior dye technology for maximum separation between live and dead cells.*
- **Stable:** *No loss of fluorescence signal after fixation and permeabilization, and stained cells can be kept for days before analysis.*
- **Flexible:** *Live-or-Dye™ Fixable Viability Stains can be used for flow cytometry or microscopy and are compatible with antibody staining and other cell staining techniques.*
- **Choice:** *Biotium offers amine-reactive dyes in 8 colors across the spectrum, as well as 1 red nuclear dye, for maximum versatility in multi-color flow cytometry and cell imaging.*

Live-or-Dye™ Fixable Viability Staining Kits for discrimination between live and dead cells during flow cytometry and microscopy.

Amine-reactive Live-or-Dye™ Fixable Viability Stains
Biotium offers a selection of eight different amine-reactive Live-or-Dye viability stains spanning the fluorescence spectrum, for maximal flexibility in multi-color analysis (Figure 2 and Table 1, next page). The membrane-impermeant dyes enter dead cells that have compromised membrane integrity and covalently label free amines on intracellular proteins. They are typically used to exclude dead cells from analysis in flow cytometry (Figure 2). Live-or-Dye Fixable Viability Staining Kits can also be used to discriminate live from dead cells during microscopy (Figure 3). Live-or-Dye labeling is extremely stable, allowing the cells to be fixed and permeabilized without loss of fluorescence or dye transfer between cells.

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 (Figure 4). 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.

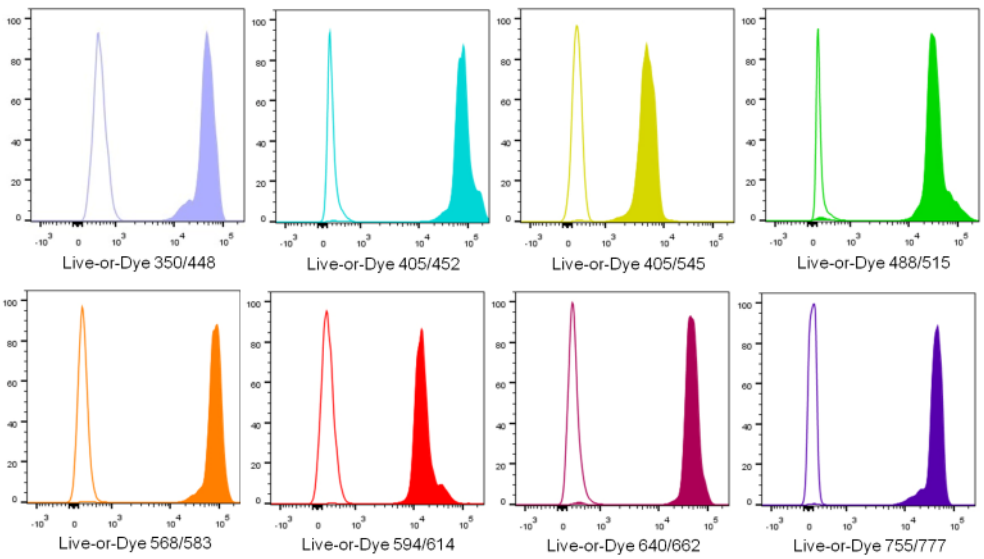

Figure 2. Discrimination of live and dead cells by flow cytometry using Live-or-Dye Fixable Viability Stains. Live or heat-killed Jurkat cells were stained with the Live-or-Dye cell stain shown on each histogram x-axis. Heat killed cells (solid peaks) showed much higher fluorescence intensity compared to live cells (white peaks), allowing the two populations to be clearly distinguished. Results are shown for unfixed cells; nearly identical histograms were observed after fixation with 2% formaldehyde followed by permeabilization with 0.1% Triton X-100.

Biotium
Glowing Products for Science™

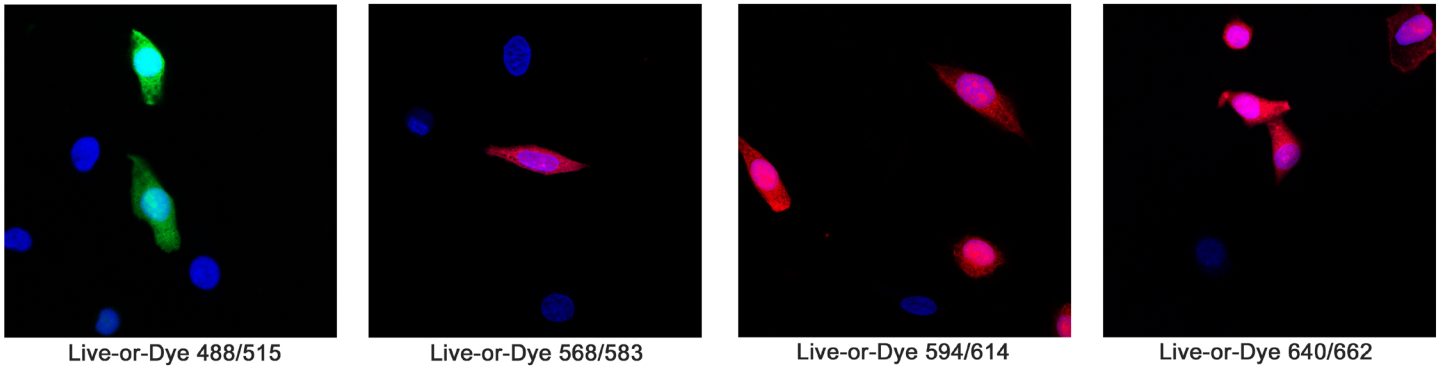

Figure 3. Discrimination of live and dead cells in fluorescence microscopy using Live-or-Dye Fixable Viability Stains. Ethanol-treated HeLa cells were stained with the indicated Live-or-Dye cell stain. After staining cells were fixed with 4% formaldehyde followed by permeabilization with 0.1% Triton X-100, and then stained with Hoechst to label both live and dead cells. Killed cells show bright Live-or-Dye fluorescence staining, compared to no staining seen in live cells (blue Hoechst-stained nuclei), allowing the two populations to be clearly distinguished.

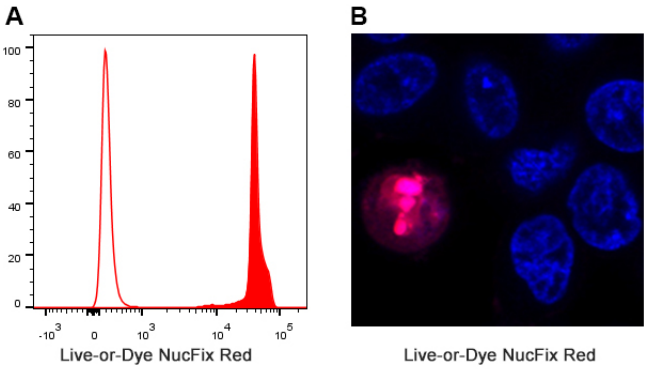

Figure 4. Discrimination of live and dead cells using the Live-or-Dye NucFix Red Fixable Viability Stain. **A**. Live or heat-killed Jurkat cells were stained with Live-or-Dye NucFix Red. Heat killed cells (solid peak) showed much higher fluorescence intensity compared to live cells (white peak), allowing the two populations to be clearly distinguished. **B**. Ethanol-treated HeLa cells were stained with NucFix Red together with Hoechst to label all cell nuclei. Killed cells show bright, red nuclear Live-or-Dye fluorescence staining, compared to no staining seen in live cells (blue Hoechst-stained nuclei). Identical staining is seen when cells are fixed and permeabilized after staining.

Table 1. Spectral Properties and Ordering Information

Catalog No. standard size (200 reactions)	Catalog No. trial size (50 reactions)	Product Description	Laser line	Emission filter	Abs/Em maxima	Application (FC=flow cytometry; M=microscopy)
32002	32002-T	Live-or-Dye™ 350/448	355 nm	DAPI or Violet	347/448 nm	FC
32003	32003-T	Live-or-Dye™ 405/452	405 nm	Pacific Blue	408/452 nm	FC
32009	32009-T	Live-or-Dye™ 405/545	405 nm	AmCyan	395/545 nm	FC
32004	32004-T	Live-or-Dye™ 488/515	488 nm	FITC	490/515 nm	FC, M
32005	32005-T	Live-or-Dye™ 568/583	488 or 561 nm	PE	562/583 nm	FC, M
32006	32006-T	Live-or-Dye™ 594/614	488 or 561 nm	PE-Texas Red	561/624 nm	FC, M
32007	32007-T	Live-or-Dye™ 640/662	633 or 640 nm	APC	642/662 nm	FC, M
32008	32008-T	Live-or-Dye™ 750/777	633 or 640 nm	APC-Cy7	755/777 nm	FC
32010	32010-T	Live-or-Dye NucFix™ Red	488 or 532 nm	PE-Texas Red	520/610 nm	FC, M

Related Products

Cat.#	Product Name	Unit Size
30069	AccuEasy™ Flow Cytometry Kit (simple cell surface staining for adherent cells)	1 kit
22003	Mini Cell Scrapers	200 items
30068	ViaFluor™ 405 Cell Proliferation Assay Kit	1 kit
30050	ViaFluor™ CFSE Cell Proliferation Assay Kit	1 kit
30080	ViaFluor™ 568 Cell Proliferation Assay Kit	1 kit
23006	Flow Cytometry Fixation/Permeabilization Kit	50 tests
22015	Fixation Buffer	100 mL
22016	Permeabilization Buffer	100 mL
22017	Permeabilization and Blocking Buffer	100 mL
30029	NucView™ 488 Caspase-3 Assay Kit for Live Cells	100 assays
40046	Hoechst 33342, 10 mg/mL in H2O	10 mL
23002	EverBrite™ Mounting Medium with DAPI	10 mL
23004	EverBrite™ Hardset Mounting Medium with DAPI	10 mL

DRAQ7 is a trademark of Biostatus Limited.

Biotium
Glowing Products for Science™
Biotium, Inc.
Tel: (510)265-1027
web: www.biotium.com