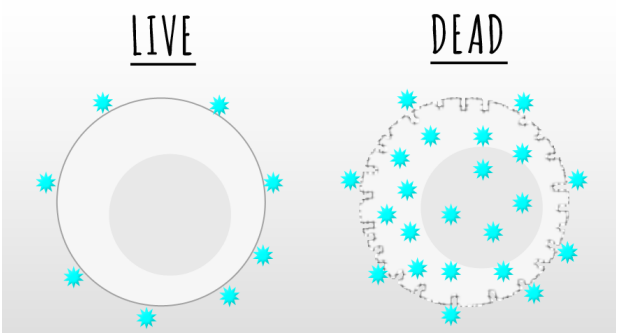
Zombie Fixable Viability Dyes

Live Cell/Dead Cell Discrimination

Zombie Dyes

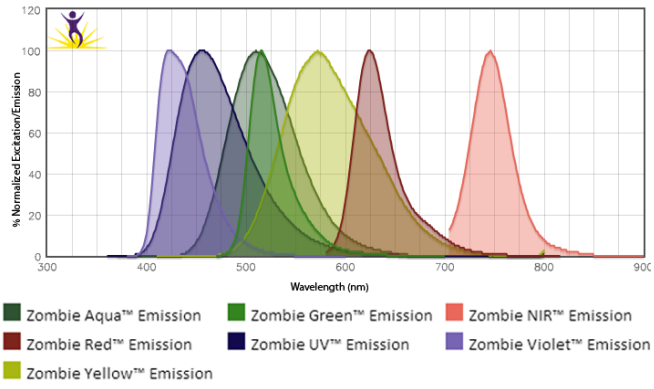


Zombie dyes are fixable dyes that react with primary amine groups on proteins. Live cells exclude the dyes, so that only cell surface proteins will be labeled, while dead cells allow the entry of the dyes into the cytoplasm increasing the amount of total protein labeling. Thus, dead cells will be significantly brighter for Zombie fluorescence than live cells.

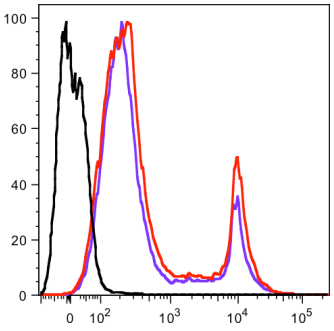
It is critical to understand the degree of cell death in any flow cytometry assay and exclude those cells from the analysis. BioLegend now introduces four new members to the family of fixable Zombie dyes: **Zombie UV™, Zombie Violet™, Zombie Green™, and Zombie Red™.** *Also available are Zombie Aqua™, Zombie NIR™, and Zombie Yellow™.*

Emission Spectra of Zombie Dyes

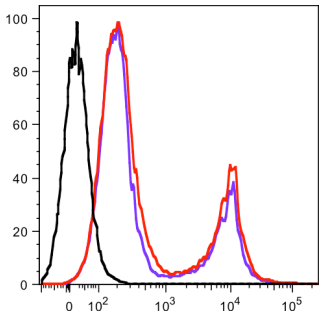
To view the complete excitation and emission spectra for each Zombie dye and compare them to other fluorophores for flow cytometry, visit our Fluorescence Spectra Analyzer page at: **biolegend.com/spectraanalyzer.**



Example Data:



One day old C57BL/6 mouse splenocytes were stained with Zombie Red™ and analyzed before fixation (purple) or after fixation and permeabilization (red). Cells alone, without Zombie Red™ staining, are indicated in black.



One day old C57BL/6 mouse splenocytes were stained with Zombie Violet™ and analyzed before fixation (purple) or after fixation and permeabilization (red). Cells alone, without Zombie Violet™ staining, are indicated in black.

BioLegend is ISO 9001:2008 and ISO 13485:2003 Certified

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Live Cell/Dead Cell Discrimination

Product List

Name	Excitation (max)	Emission (max)	Size	Cat. No.
Zombie Aqua™ Fixable Viability Kit	382 nm	510 nm	100 tests/500 tests	423101/423102
Zombie Green™ Fixable Viability Kit **NEW**	491 nm	515 nm	100 tests/500 tests	423111/423212
Zombie NIR™ Fixable Viability Kit	719 nm	746 nm	100 tests/500 tests	423105/423106
Zombie Red™ Fixable Viability Kit **NEW**	600 nm	624 nm	100 tests/500 tests	423109/423110
Zombie UV™ Fixable Viability Kit **NEW**	362 nm	459 nm	100 tests/500 tests	423107/423108
Zombie Violet™ Fixable Viability Kit **NEW**	400 nm	423 nm	100 tests/500 tests	423113/423114
Zombie Yellow™ Fixable Viability Kit	396 nm	572 nm	100 tests/500 tests	423103/423104

Strategy Guide

Plan	Options
	→ Propidium Iodide, 7-AAD, or Zombie Dyes
* I plan to run my cells live through the flow cytometer without any fixation. (Sorting live cells)	→ Zombie Dyes prior to fixation.
* I plan to fix my cells before I do any staining with antibodies.	→ Zombie Dyes prior antibody staining and fixation.
* I plan to stain my cells with antibodies and then fix my cells	→ Zombie Dyes prior to fixation.
* I plan to fix and permeabilize my cells for intracellular antibody staining.	→ No Live/Dead option available.
* My cells are already fixed	

Zombie Fixable Viability Kit FAQs

Q: Why can't I fix my cells prior to using Zombie dyes?

A: The fixation process can contort and alter the membrane of cells, effectively rendering them as dead. Since the ability of Zombie dyes to stain dead cells is correlated with cell permeability, your results may no longer be a valid representation of dead versus live cells.

Q: Can I use methanol/ethanol for fixation after using Zombie dyes?

A: Yes, most fixation reagents are fine to be used with Zombie dyes. However, it should be noted that Zombie dyes can still be sensitive to reactive oxygen species. Light exposure or reagents with hydrogen peroxide can lead to free radical formation, affecting fluorescence.

Citations

Vom Berg J, *et al.* 2013. *J Exp Med.* 210:2803.

Q: How does the performance of your Zombie dyes compare with competitors?

A: Zombie dyes have been tested against other leading competitors' fixable viability kits and given comparable results. We also highly recommend that you titrate down the amount of each dye used in order to best match the negative signals of your unstained sample and MFI- (mean fluorescence intensity) stained samples.

Q: Can I use Zombie dyes and Annexin V to detect apoptotic cells?

A: Yes, Zombie dyes can be used with Annexin V to discriminate live, apoptotic, and dead cells. Cells double positive for both Zombie and Annexin V are dead, while Zombie-dim/Annexin V-positive cells are apoptotic. Live cells will be Zombie-low and Annexin V-negative. The advantage to Zombie dyes over PI and 7-AAD is that you can now fix and/or permeabilize the cells to stain for cell surface and intracellular antigens.

Pour en savoir plus

BioLegend®

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