

## Zombie UV™ Fixable Viability Kit

<b>Catalog# / Size</b>	423107 / 100 tests 423108 / 500 tests
<b>Other Names</b>	Fixable Dye, Fixable Viability Dye
<b>Description</b>	Zombie UV™ is an amine reactive fluorescent dye that is non-permeant to live cells, but permeant to the cells with compromised membranes. Thus, it can be used to assess live vs. dead status of mammalian cells. Zombie UV™ is a polar water soluble dye, providing violet fluorescence, making it suitable for multi-color detection.

### Product Details

<b>Preparation</b>	Zombie UV™ Fixable Viability kit is composed of lyophilized Zombie UV™ dye and anhydrous DMSO. For reconstitution, bring the kit to room temperature; add 100 µl of DMSO to one vial of Zombie UV™ dye until fully dissolved. 100 tests = 1 vial of Zombie UV™ + DMSO, 500 tests = 5 vials of Zombie UV™ + DMSO.
<b>Storage &amp; Handling</b>	Store kit at -20°C upon receipt. Do not open vials until needed. Once the DMSO is added to the Zombie UV™ dye, use immediately, or store at -20°C in a dry place and protected from light, preferably in a desiccator or in a container with desiccant for no more than one month. The unopened kit is guaranteed for six months.
	This product has a shelf-life of 12 months or less. Please contact our <a href="#">technical support</a> team for lot specific CoA and expiration date inquiries of this product.
<b>Application</b>	FC, ICFC - Quality tested
<b>Recommended Usage</b>	Each lot of this product is quality control tested by immunofluorescent staining with flow cytometric analysis.
	For flow cytometry, the suggested dilution is 1:100-1:1000 for 1-10 million cells. It is recommended that the reagent be titrated for optimal performance for each application, as optimal dosage varies with cell type.
<b>Excitation Laser</b>	Ultraviolet Laser (360 nm)
<b>Application Notes</b>	<p><b>Standard Cell Staining Protocol:</b></p> <ol style="list-style-type: none"> <li>Prior to reconstitution, spin down the vial of lyophilized reagent in a microcentrifuge to ensure the reagent is at the bottom of the vial.</li> <li>For reconstitution, pre-warm the kit to room temperature; add 100 µl of DMSO to one vial of Zombie UV™ dye and mix until fully dissolved.</li> <li>Wash cells with PBS buffer (no Tris buffer and protein free).</li> <li>Dilute Zombie UV™ dye at 1:100-1000 in PBS. Resuspend 1-10 x 10<sup>6</sup> cells in diluted 100 µl Zombie UV™ solution. To minimize background staining of live cells, titrate the amount of dye and/or number of cells per 100 µl for optimal performance. Different cell types can have a wide degree of variability in staining based on cell size and degree of cell death.</li> </ol> <p><b>Note:</b> Don't use Tris buffer as a diluent and be sure that the PBS does not contain any other protein like BSA or FBS.</p> <p><b>Note:</b> The amount of dye used can also influence the ability to detect apoptotic as well as live and dead cells.</p> <ol style="list-style-type: none"> <li>Incubate the cells at room temperature, in the dark, for 15-30 minutes.</li> <li>Wash one time with 2 ml BioLegend's Cell Staining Buffer (Cat. No. 420201) or equivalent buffer containing serum or BSA.</li> <li>Continue performing antibody staining procedure as desired.</li> <li>Cells can be fixed with paraformaldehyde or methanol prior to permeabilization or can be analyzed without fixation.</li> </ol> <p><b>No-wash Sequential Staining Protocol:</b></p> <ol style="list-style-type: none"> <li>Wash cells with PBS buffer (no Tris buffer and protein free).</li> <li>For reconstitution, pre-warm the kit to room temperature; add 100 µl of DMSO to one vial of Zombie UV™ dye and mix until fully dissolved.</li> <li>Determine the total µl volume of antibody cocktail previously titrated and optimized for the assay that will be added to each vial/well of cells based on a final volume of 100 µl. Subtract that antibody volume from the 100 µl total staining volume intended for the assay. In the remaining volume, dilute Zombie UV™ dye at 1:100-1000 in PBS as determined by prior optimization at that volume. For example, if you are adding 20 µl of antibody cocktail for a 100 µl total staining volume, use 80 µl of Zombie UV™ solution. Resuspend 1-10 x 10<sup>6</sup> cells in the appropriate volume of Zombie UV™ solution. Different cell types can have a wide degree of variability in staining based on cell size and degree of cell death.</li> </ol>

**Note:** Don't use Tris buffer as a diluent and be sure that the PBS does not contain any other protein like BSA or FBS.

**Note:** The amount of dye used can also influence the ability to detect apoptotic as well as live and dead cells.

4. Incubate for 10-15 minutes at RT, protected from light. Without washing the cells, add the cell surface antibody cocktail and incubate for another 15-20 minutes.
5. Add 1-2 mL Cell Staining Buffer (Cat. No. 420201) or equivalent buffer containing BSA or serum. Centrifuge to pellet.
6. Continue with normal fixation and permeabilization procedure. If planning to skip fixation and analyze cells live, complete an additional wash step to minimize any unnecessary background of the live cells.

**Notes:** If the cell type in use cannot tolerate a protein-free environment, then titrate the Zombie UV™ dye in the presence of the same amount of BSA/serum as will be present in the antibody staining procedure. A higher amount of Zombie UV™ may be required since the BSA/serum will react with and bind up some proportion of the Zombie UV™.

Zombie UV™ dye is excited by the UV laser (350 nm) and has fluorescence emission maximum at 459 nm. If using in a multi-color panel design, filter optimization may be required depending on other fluorophores used. Zombie UV™ dye has similar emission to DAPI.

#### Application References

(PubMed link indicates BioLegend citation)

1. Souza-Fonesca-Guimaraes F, et al. 2015. PNAS. 112:2376. PubMed

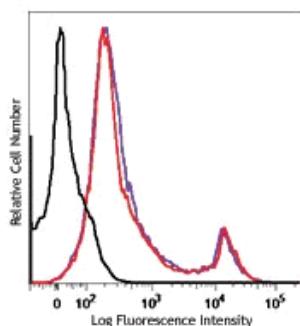
#### Product Citations

1. Souza-Fonesca-Guimaraes F, et al. 2015. Proc Natl Acad Sci U S A. 112:2376. PubMed
2. Matsui K, et al. 2015. PLoS One. 10: 0137195. PubMed
3. Giles D, et al. 2016. PLoS One. 11: 0149783. PubMed
4. Lacar B, et al. 2016. Nat Commun. 7: 11022. PubMed
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6. Comte D, et al. 2016. Proc Natl Acad Sci U S A. 113: 9321 - 9326. PubMed
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8. Rao S, et al. 2017. Cell. 168(3):503-516.e12. PubMed
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## Antigen Details

Biology Area	Apoptosis/Tumor Suppressors/Cell Death, Cell Biology, Neuroscience
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## Product Data



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

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