NucView® 488 & RedDot™ 2 Apoptosis & Necrosis Kit

Homogeneous, no wash assay for detection of caspase-3/7 activity with green fluorescence and dead cell staining with far-red fluorescence, for fluorescence microscopy or flow cytometry.

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Product attributes

Apoptosis/viability marker	Caspase, Dead cell stain, Apoptosis/necrosis assay
For live or fixed cells	For live/intact cells
Detection method/readout	Fluorescence microscopy, Live cell imaging, Flow cytometry
Assay type/options	Endpoint assay, No-wash staining
Substrate specificity	Caspases
Colors	Green/Far-red
Storage Conditions	Store at 2 to 8 °C, Protect from light

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Product Description

The NucView® 488 and RedDotTM Apoptosis & Necrosis Assay Kit provides a convenient tool for profiling apoptotic and necrotic cell populations by fluorescence microscopy or flow cytometry.

- Rapid, no-wash, endpoint or real-time assay
- Non-toxic, allowing multi-day experiments to be performed
- For flow cytometry, microscopy or live cell imaging systems
- Dual detection of caspase activity (green) and necrotic cells (far-red)

This kit contains NucView® 488 Caspase-3 Substrate for detection of caspase-3/7 activity. The far-red dead cell stain RedDot[™] is included for staining necrotic and late apoptotic cells that have compromised plasma membrane integrity.

In contrast to other fluorogenic caspase substrates or fluorescent caspase inhibitor based (FLICA) assays, NucView® 488 Caspase-3 Substrate can be used to detect caspase-3/7 activity within individual intact cells without inhibiting apoptosis progression. The substrate consists of a fluorogenic DNA dye coupled to the caspase-3/7 DEVD recognition sequence. The substrate, which is initially non-fluorescent, penetrates the plasma membrane and enters the cytoplasm. In apoptotic cells, caspase-3/7 cleaves the substrate, releasing the high-affinity DNA dye, which migrates to the cell nucleus and stains DNA with bright green fluorescence. Thus, NucView® 488 Caspase-3 Substrate allows detection caspase-3/7 activity and visualization of morphological changes in the nucleus during apoptosis.

RedDotTM2 is a cell membrane-impermeable, far-red dye with high selectivity for membrane compromised or dead cells. RedDotTM2 has far-red emission at 695 nm for detection in the Cy®5 channel, well-separated from the green fluorescence of NucView® 488. The excitation maximum of RedDotTM2 is 665 nm, but it can be efficiently excited by wavelengths from 488 to 647 nm, and therefore can be used with the 488 nm flow cytometry laser line.

Note: While NucView® 488 staining is formaldehyde-fixable, fixation after staining with RedDot™2 is not recommended because it can result in increased background staining of healthy cells.

To learn about the advantages of monitoring apoptosis using NucView® caspase-3 substrates, visit the NucView® Technology Page.

NucView is a registered trademark of Biotium. NucView enzyme substrate technology is covered by U.S. patents. Cy Dye is a registered trademark of Cytiva.

References

- 1. Cytometry Part A (2014) 85A, 179187. DOI: 10.1002/cyto.a.22410
- 2. bioRxiv (2019) doi: https://doi.org/10.1101/542597
- 3. Cellular Microbiol (2019) 21, e12956. https://doi.org/10.1111/cmi.12956
- 4. Toxicol Rep (2019) 6, 305-320. https://doi.org/10.1016/j.toxrep.2019.02.004

Find a list of NucView® references and a list of validated cell lines under Supporting Documents.

This datasheet was generated on November 5, 2025 at 12:53:25 PM. Visit product page to check for updated information before use. Product link: https://biotium.com/product/nucview-488-and-reddot-2-apoptosis-necrosis-kit/