

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.

Product Description

The NucView® 488 and RedDot™ 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.

RedDot™2 is a cell membrane-impermeable, far-red dye with high selectivity for membrane compromised or dead cells. RedDot™2 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 RedDot™2 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](https://doi.org/10.1002/cyto.a.22410)
2. bioRxiv (2019) [doi: https://doi.org/10.1101/542597](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.

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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