

NUCLEAR-ID™ GREEN CHROMATIN CONDENSATION DETECTION KIT

Nuclear-ID™ Green Chromatin Condensation Detection Kit
for fluorescence microscopy and flow cytometry

ENZ-51021-K200

200 Assays

HIGHLIGHT

- Rapid analysis of apoptosis, based upon fluorescence detection of condensed chromatin in apoptotic cells
- Stains condensed chromatin of apoptotic cells ~40-fold more brightly than chromatin of healthy cells with control apoptosis-inducing agent, staurosporine
- 488nm laser excitable dye is compatible with a wide range of instruments, including conventional flow cytometers
- Easy no wash, mix-and-read staining protocol
- Optimized for both fluorescence microscopy and flow cytometry applications
- Suitable for death pathway analysis and drug/toxin studies
- Stringently manufactured, to control and eliminate non-specific assay artifacts

Apoptosis is recognized as a pathway of highly orchestrated signaling events. Some of the key morphological features of apoptosis include cell membrane blebbing, cell shrinkage, chromatin condensation, nucleosomal fragmentation, and breaking up of the cell into a number of membrane-bound, ultrastructurally well-preserved fragments, referred to as apoptotic bodies.

The Nuclear-ID™ Green Chromatin Condensation Detection Kit provides a rapid and convenient assay for one of the more prominent hallmarks of apoptosis, nuclear condensation. The kit contains a DNA intercalating dye that brightly stains the condensed chromatin of apoptotic cells, but only dimly stains the normal chromatin of live cells. This staining pattern makes it possible to distinguish between healthy and apoptotic cell populations by fluorescence microscopy or flow cytometry. A control apoptosis-inducing agent, staurosporine, is provided for monitoring apoptotic changes in nuclear organization. Potential applications for live-cell studies using the kit include monitoring the stages of chromatin condensation and rapid testing of compounds that induce apoptosis.

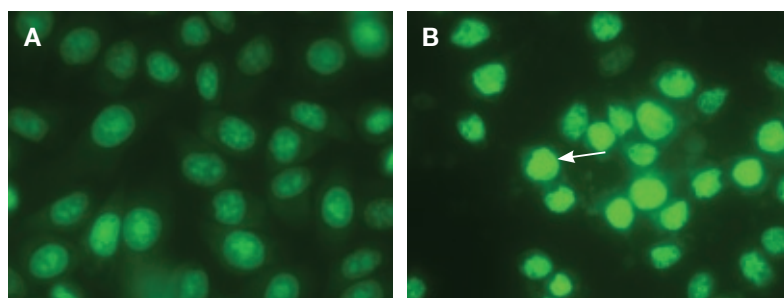


FIGURE 1: Chromatin condensation, as observed by fluorescence microscopy: (A) HeLa cells were treated for 4 hours with 0.2% DMSO (Control) or (B) 2 μ M Staurosporine on a slide and stained with 5 μ M Nuclear-ID™ Green dye. The Nuclear-ID™ Green chromatin condensation dye brightly stains the condensed chromatin of apoptotic cells (arrow) while uncondensed chromatin of healthy cells are dimly stained.

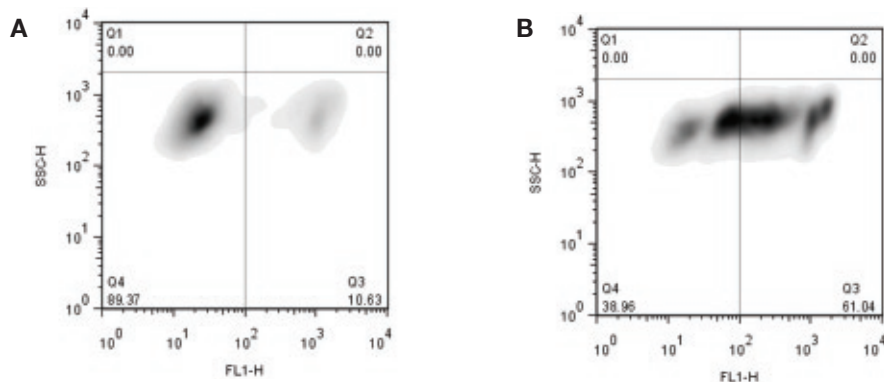


FIGURE 2: Flow cytometry-based analysis. Jurkat cells were mock-induced with 0.2% DMSO (A) or induced with 2 μ M Staurosporine (B) for 4 hours at 37°C. After treatment, cells were incubated with 1 μ M Nuclear-ID™ Green Chromatin Condensation dye, then analyzed by flow cytometry using a 488nm laser with fluorescence detection in the FL1 channel. Flow cytometry resolves the healthy cell population from the apoptotic cell population undergoing chromatin condensation, based upon an ~40-fold increased fluorescence intensity. Control populations of Jurkat cells stained but not induced show lower intensity staining, with the exception of a small percentage (up to 10%) of highly fluorescent cells, as expected in routine cultures of untreated cells (2A). In the samples treated with 2 μ M Staurosporine for 4 hours, more than 50% of the cells become highly fluorescent indicating late-stage apoptosis and a clear separation of healthy cells from apoptotic cells with condensed chromatin is obvious (2B).

Related Products

Product	Prod. No.	Size
GFP-Certified™ Apoptosis/Necrosis Detection Kit for fluorescence microscopy and flow cytometry	ENZ-51002-25 ENZ-51002-100	25 Assays 100 Assays
Mito-ID™ Membrane Potential Detection Kit for fluorescence microscopy and flow cytometry	ENZ-51018-K100	100 Assays
Mito-ID™ Membrane Potential Cytotoxicity Kit	ENZ-51019-KP002	2 x 96 wells
5-Carboxyfluorescein (Ultra Pure)	ENZ-52051	100 mg
5-Carboxyfluorescein succinimidyl ester (Ultra Pure)	ENZ-52053	10 mg
Coelenterazine (Ultra Pure)	ENZ-52054	250 μ g
JC-1 (Ultra Pure) [5,5',6,6'-Tetrachloro-1,1',3,3'-tetraethylbenzimidazolylcarbocyanine iodide]	ENZ-52304	5 mg
Nile Red (Ultra Pure)	ENZ-52551	25 mg

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