Nuclear Green™ Photo-Fixable DCS1 *5 mM DMSO Solution*

Catalog number: 17570
Unit size: 1 mg

Component	Storage	Amount (Cat No. 17570)
Nuclear Green™ Photo-Fixable DCS1 *5 mM DMSO Solution*	Freeze (< -15 °C), Minimize light exposure	1 mg

OVERVIEW

Nuclear Green™ Photo-Fixable DCS1 is a unique fluorogenic, DNA-selective, and cell-impermeant dye for analyzing DNA content in dead, fixed, or apoptotic cells. It selectively stains cell membrane-compromised cells. It contains a DNA-binding fluorophore, thus readily binds to DNA upon interaction. Nuclear Green™ Photo-Fixable DCS1 has its green fluorescence significantly enhanced upon binding to DNA. In addition to its DNA-binding fluorophore, it contains a secondary DNA-photoreactive group. When needed, a moderate UV illumination (e.g., 350 nm) makes the DNA-bound dye readily react with DNA and makes the dye permanently conjugate with the DNA. It is optimized for surviving the cell fixation process better than common DNA dyes such as PI, DAPI, Hoechst, 7-AAD, DRAQ-5, DRAQ-7, or SYBR Green. It can be used in fluorescence imaging, microplate, and flow cytometry applications. This DNA-binding dye might be used for multicolor analysis of dead, fixed, or apoptotic cells with proper filter sets.

AT A GLANCE

Spectral Properties

Ex/Em = 510/532 nm (bound to DNA)

KEY PARAMETERS

Fluorescence microscope

Emission	FITC filter set
Excitation	FITC filter set
Recommended plate	Black wall/clear bottom

SAMPLE EXPERIMENTAL PROTOCOL

Caution: The following protocol can be adapted for most cell types. Growth medium, cell density, the presence of other cell types, and factors may influence staining. Residual detergent on glassware may also affect the staining of many organisms and cause brightly stained material to appear in solutions with or without cells present.

1. Add 2 to 10 µM of Nuclear Green™ Photo-Fixable DCS1 to fixed, dead, or apoptotic cells (whether in suspension or adherent) and incubate for 15 to 60 minutes.

   Note: To determine the optimal concentration for the desired result, it is advisable to test a wide range of dye concentrations in initial experiments.

   Optional: Wash the cells twice with Hanks and 20 mM HEPES buffer (HBSS) or a buffer of your choice. Then, fill the wells with fresh HBSS or growth medium.

2. Observe the cells using a fluorescence microscope, fluorescence microplate reader, or flow cytometer equipped with the desired filter set.

3. **Optional:** Fix cells with 4% formaldehyde for 20 minutes at room temperature. Wash cells twice to get rid of any fixation solution.

   Optional: Photofix cells with moderate UV illumination at 365 nm.

EXAMPLE DATA ANALYSIS AND FIGURES

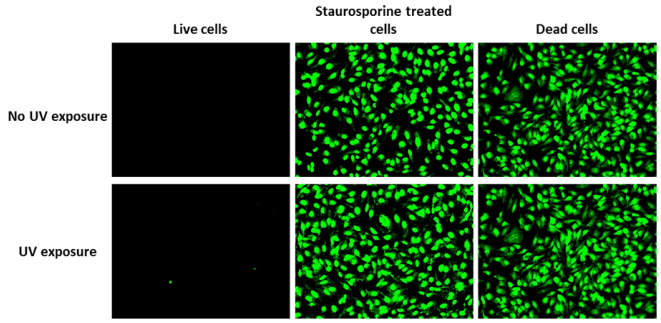

Figure 1. Live, apoptotic (Staurosporine treated cells), and dead (4% formaldehyde-treated) HeLa cells were stained with Nuclear Green™ Photo-Fixable DCS1 dye and imaged using a fluorescence microscope equipped with a FITC filter set. The images were captured before and after fixation with a 365 nm Transilluminator for 20 minutes.

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