

**ReadiUse™ DXAQ7 Staining Solution \*5 mM in DMSO/Superior Replacement to DRAQ7\***

Catalog number: 17557

Unit size: 50 uL

Component	Storage	Amount (Cat No. 17557)
ReadiUse™ DXAQ7 Staining Solution	Freeze (< -15 °C), Minimize light exposure	50 uL

**OVERVIEW**

ReadiUse™ DXAQ7 Staining Solution is a far-red fluorescent anthraquinone dye designed for selective nuclear staining of non-viable and permeabilized cells. Its membrane-impermeable properties prevent uptake by intact cells, making it an effective tool for the exclusion of non-viable cells in flow cytometry. ReadiUse™ DXAQ7 exhibits a high binding affinity for double-stranded DNA (dsDNA), intercalating rapidly to facilitate accurate quantification of DNA content in fixed-cell cycle analysis. Notably, it provides twice the fluorescence intensity of DRAQ7™ (Thermo Fisher), enhancing sensitivity and signal resolution for improved detection in various analytical platforms. In fluorescence microscopy, it functions as a robust nuclear counterstain and a reliable viability indicator in endpoint assays, with low cytotoxicity that supports extended cell culture studies.

ReadiUse™ DXAQ7 exhibits a broad excitation range from 488 nm to 647 nm, with optimal excitation achieved using red laser lines. Upon binding to dsDNA, it emits at a peak wavelength of 697 nm, providing a high signal-to-noise ratio for precise detection. In flow cytometry, the dye can be efficiently detected using PerCP-Cy™ 5.5 or PerCP-iFluor® 710 filter sets when excited by a blue laser, while BP or LP filters optimized for Cy5 detection are recommended for red laser excitation. For fluorescence microscopy, the dye is optimally excited with yellow to red light sources and detected using far-red longpass filters such as 695LP, 715LP, or 780LP.

ReadiUse™ DXAQ7 does not require UV excitation, allowing compatibility with FITC and PE fluorophores without spectral compensation. However, due to its broad excitation spectrum and far-red emission, it is not recommended for use with other far-red fluorophores excited by blue-to-red light.

**AT A GLANCE**
**Protocol Summary**

1. Prepare cells in a growth medium.
2. Incubate cells with ReadiUse™ DXAQ7 Staining working solution at 37 °C for 15-30 minutes.
3. Analyze using a fluorescence microscope with a Cy5 filter set or a flow cytometer with an APC or APC-Cy7 filter set.

**CELL PREPARATION**
**Adherent Cell Preparation**

1. Plate cells overnight in a growth medium at a density of 10,000 to 40,000 cells per well in 90 µL for a 96-well plate or 2,500 to 10,000 cells per well in 20 µL for a 384-well plate.

**Non-Adherent Cell Preparation**

1. Centrifuge cells from the culture medium to pellet, then resuspend in fresh culture medium.
2. Seed 50,000–100,000 cells/well in 90 µL for a 96-well poly-D-lysine

plate or 10,000–25,000 cells/well in 20 µL for a 384-well poly-D-lysine plate.

3. Before the experiment, centrifuge the plate at 800 rpm for 2 minutes with the brake off.

**Note:** The optimal cell density should be determined individually for each cell line.

**PREPARATION OF WORKING SOLUTION**
**ReadiUse™ DXAQ7 Staining Working Solution**

1. Prepare a 2–10 µM ReadiUse™ DXAQ7 staining solution in PBS or a suitable buffer. The working solution is stable for 2 hours at room temperature.

**Note:** Unused ReadiUse™ DXAQ7 staining stock solution can be aliquoted and stored at ≤ -20°C for several months in tightly sealed tubes, protected from light. Avoid freeze-thaw cycles to maintain stability.

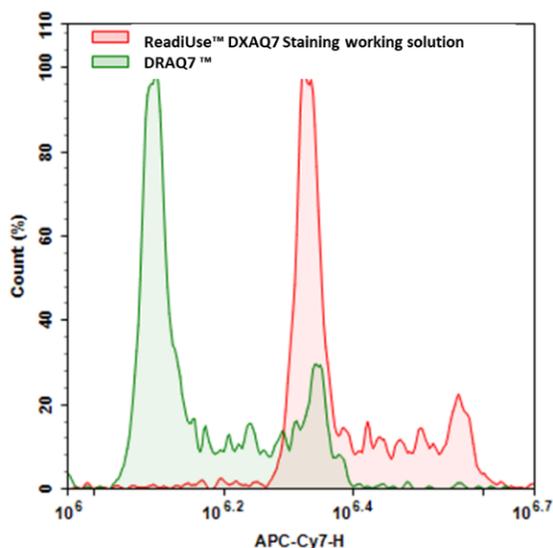
**SAMPLE EXPERIMENTAL PROTOCOL**

1. Treat the samples as desired, then remove the culture medium and wash the cells with DPBS or a preferred buffer.
2. Add 100 µL per well for a 96-well plate or 50 µL per well for a 384-well plate of ReadiUse™ DXAQ7 staining solution to the cell plate. Incubate at 37°C for 15–30 minutes, keeping the plate protected from light.

**Note:** The optimal ReadiUse™ DXAQ7 staining solution concentration depends on the application. Higher concentrations than the recommended working solution may be toxic to cells. Staining conditions should be adjusted based on cell type and probe permeability.

3. Remove the working solution from each well, then wash the cells three times with DPBS or a buffer of choice.
4. Observe the fluorescence signal using a fluorescence microscope with a Cy5 filter set or flow cytometry with an APC or APC-Cy7 channel.

**EXAMPLE DATA ANALYSIS AND FIGURES**



**Figure 1.** Flow cytometry analysis of fixed HeLa cells stained with either ReadUse™ DXAQ7 Staining Solution (Cat# 17557) or DRAQ7™.

**DISCLAIMER**

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