QuickRed™ Nucleus stain

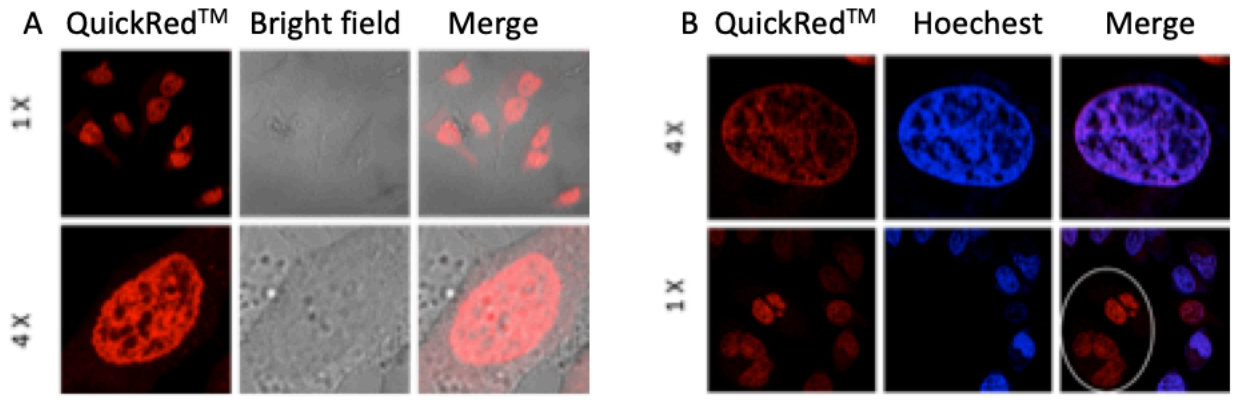
The nucleus is a highly specialized organelle that serves as the information processing and administrative center of the cell. This organelle has two major functions: it stores the cell's hereditary material, or DNA, and it coordinates the cell's activities, which include growth, intermediary metabolism, protein synthesis, and reproduction (cell division).

The nucleus is the information center of the cell and is surrounded by a nuclear membrane in all eukaryotic organisms. It is separated from the cytoplasm by the nuclear envelope, and it houses the double-stranded, spiral-shaped deoxyribonucleic acid (DNA) molecules, which contain the genetic information necessary for the cell to retain its unique character as it grows and divides.

QuickRed™ reagent is a cell permeant stain that emits bright NIR fluorescence when bound to DNA. QuickRed™ reagent is suitable for staining nuclei in live/fixed cell preparations and tissue sections. QuickRed™ reagent also has wide applicability due to their low background and bright fluorescence. Uses include staining of nucleic acids on solid supports, pre-staining of samples for gel or capillary electrophoresis, viability detection and counterstaining in multiple-label experiments.

Different Probe Reagents of Nucleus Visualization.

	Hoechst	DAPI	Propidium Iodide	QuickRed™
Suitability for fixed samples	+++	+++	+++	+++
Suitability for live cell imaging	++	++	-	+++
Maintenance of Nucleus functionality	+	+	-	+++
Biocompatibility	+	++	-	+++
Quality of signal-to-noise ratio	++	+	++	+++
Nucleus binding specificity	+++	++	++	+++
water solubility	+	++	++	+++
Excitation/emission (nm)	355/465	364/454	535/615	625/650



A. QuickRed™ specifically stains Nucleus in live Tumor cell and B. co-localizes with Hoechst.

Selected References for nucleus staining:

(1) Miller, Y. I.; Chang, M. K.; Funk, C. D.; Feramisco, J. R.; Witztum, J. L. 12/15-lipoxygenase translocation enhances site-specific actin polymerization in macrophages phagocytosing apoptotic cells. J Biol Chem 2001, 276 (22), 19431-9.

(2) Lamond, A. I.; Earnshaw, W. C. Structure and function in the nucleus. Science (New York, N.Y.) 1998, 280 (5363), 547-53.

(3) Rincon, E.; Rocha-Gregg, B. L.; Collins, S. R. A map of gene expression in neutrophil-like cell lines. BMC Genomics 2018, 19 (1), 573.

(4) Smolewski, P.; Bedner, E.; Gorczyca, W.; Darzynkiewicz, Z. "Liquidless" cell staining by dye diffusion from gels and analysis by laser scanning cytometry: potential application at microgravity conditions in space. Cytometry 2001, 44 (4), 355-60.

(5) Dumitriu, I. E.; Mohr, W.; Kolowos, W.; Kern, P.; Kalden, J. R.; Herrmann, M. 5,6-carboxyfluorescein diacetate succinimidyl ester-labeled apoptotic and necrotic as well as detergent-treated cells can be traced in composite cell samples. Anal Biochem 2001, 299 (2), 247-52.

Onestep Laboratories Inc.

www.1steplab.com

info@1steplab.com