ViaFluor® SE Cell Proliferation Kits

Fixable cytoplasmic stains for monitoring cell division by flow cytometry. The dyes can also be used to track cell populations in co-culture.

Product attributes

Apoptosis/viability marker	All cell stain
Probe cellular localization	Nucleus & cytoplasm
For live or fixed cells	Covalent & fixable stains, For live/intact cells
Detection method/readout	Fluorescence microscopy, Flow cytometry
Assay type/options	Cell division tracking, Extended staining (several days to weeks), Real-time imaging
Cell permeability	Membrane permeant
Colors	Blue, Green, Far-red
Fixation options	Fix after staining (formaldehyde), Fix after staining (methanol), Permeabilize after staining
Storage Conditions	Store at -10 to -35 °C, Protect from light, Desiccate

Product Description

ViaFluor® SE Cell Proliferation Kits use amine-reactive dyes to covalently label cells throughout the cell cytoplasm and intracellular compartments for fixable fluorescent staining. Cell proliferation dyes are commonly used to monitor cell division by flow cytometry. The dyes also can be used to stably label cells to image cell morphology, or to track cell populations in mixed co-culture experiments.

ViaFluor® SE Dyes for Cell Proliferation Tracking

ViaFluor® SE dyes are membrane-permeant compounds that are initially non-fluorescent esters, but are converted to fluorescent dyes by intracellular esterases and will covalently react with amine groups on intracellular proteins at the same time, forming fluorescent conjugates that are retained in the cell. Immediately after staining, a single bright fluorescent population will be detected by flow cytometry. With each cell division, daughter cells inherit roughly half of the fluorescent label, allowing the number of cell divisions that occur after labeling to be detected by the appearance of successively dimmer fluorescent peaks on a flow cytometry histogram compared to cells analyzed immediately after staining. Thus, cell proliferation dyes can be used to track multiple cell divisions of cells grown in culture or injected *in vivo* after labeling with the ViaFluor® SE dye.

The number of assays that can be performed per kit depends on the dye concentration used (see the product protocol for more information). When used at 1 uM to label 10^6 cells in one mL, each dye vial can be used for 90-100 labelings.

Other Applications for ViaFluor® SE Dyes

ViaFluor® SE dyes also can be used for imaging cell morphology or identifying cells in co-culture by microscopy. Because the staining is non-toxic and well-retained, it can be used for imaging live cells over time. See our Tech Tip: Using ViaFluor® SE Stains for Cell Tracing and Co-Culture.

All three ViaFluor® SE dyes can stain gram-positive bacteria, but not gram-negative bacteria. ViaFluor® CFSE stains the cytoplasm in yeast, but ViaFluor® 405 & ViaFluor® 488 stain the yeast cell periphery. See our Cellular Stains Table for more information on how our dyes stain various organisms.

Cell Division Tracking Dyes	Catalog No.	Ex/Em (nm)	Flow detection channel	Features
ViaFluor® 405 SE Cell Proliferation Kit	30068	408/452	Pacific Blue®	• Track cell division by dye dilution using flow cytometry
ViaFluor® 488 SE Cell Proliferation Kit	30086	493/532	FITC	• ViaFluor® 488 is a unique, improved green dye to replace CFSE
ViaFluor® 650 SE Cell Proliferation Kit	30139	653/682	APC	• ViaFluor® 405 replaces CellTrace™ Violet
ViaFluor® CFSE Cell Proliferation Kit	30050	495/519	FITC	• ViaFluor® 650 replaces CellTrace™ Far Red