MitoView™ Mitochondrial Dyes

Fluorogenic mitochondrial stains for live cells that rapidly accumulate in mitochondria and can be imaged without washing.

Product Description

MitoView™ Dyes are fluorogenic mitochondrial stains for live cells.

- Rapidly stain mitochondria in live cells without washing
- Bright, photostable, and non-toxic for long-term live cell imaging
- Available in five colors with blue, green, far-red, or near-IR emission
- Monitor mitochondrial membrane potential with MitoView™ 633
- Potential-independent MitoView™ Green can also stain fixed cells
- MitoView™ 720 is a unique near-IR mitochondrial dye

These dyes rapidly accumulate in mitochondria and can be imaged without washing. They are available with blue, green, far-red, and near-infrared fluorescence. Cells can be fixed before staining with MitoView™ Green only, the other MitoView™ Dyes are for use in live cells only. We also offer MitoView™ Fix 640, a far-red mitochondrial stain suitable for no-wash, long term staining in live cells that is well-retained after fixation, permeabilization, and subsequent immunofluorescence staining.

Notes:

1. While the localization of MitoView™ Dyes (except for MitoView™ Green) does depend on mitochondrial polarization, only MitoView™ 633 fluorescence signal can be used to measure changes in mitochondrial potential. All other MitoView™ Dyes will still retain fluorescence after depolarization or fixation.
2. For staining mitochondria in fixed cells or tissue sections, we recommend using one our Mitochondrial Marker Antibodies, available with a wide selection of bright and photostable CF® Dyes and other conjugations.

MitoView™ Dyes can also be used to stain mitochondria in yeast and the cell interior of bacteria (gram-positive and gram-negative). See our Cellular Stains Table for more information on how our dyes stain various organisms.

Product attributes

Probe cellular localization	Mitochondria
For live or fixed cells	For live/intact cells
Assay type/options	No-wash staining, Real-time imaging
Cell permeability	Membrane permeant
Potential dependence	Mitochondrial potential dependent, Mitochondrial potential-independent
Apoptosis/viability marker	Mitochondrial potential
Fixation options	Fix before staining (formaldehyde)
Antibody application notes	Cells can be fixed with formaldehyde before staining with MitoView™ Green only, Mitochondrial localization of MitoView™ Blue and MitoView™ 720 is potential-dependent, MitoView™ 633 fluorescence is mitochondrial potential-dependent, MitoView™ Green staining is mitochondrial potential-independent
Colors	Blue, Green, Far-red, Near-infrared
Storage Conditions	Store at -10 to -35 °C, Protect from light

MitoView™ Dyes

Product	Ex/Em	Detection channel	Potentiometric?	Size	Cat. No.
MitoView™ 405	398/440 nm	DAPI	No†	50 ug	70070-T
20x50 ug	70070				
MitoView™ Green	490/523 nm	FITC, GFP	No	50 ug	70054-T
20x50 ug	70054				
MitoView™ 633	622/648 nm*	Cy®5, APC*	Yes	50 ug	70055-T
20x50 ug	70055				
MitoView™ Fix 640	648/670 nm	Cy®5, APC	No‡	50 ug	70082-50ug
10x50 ug	70082				
MitoView™ 650	644/670 nm	Cy®5, APC	No	50 ug	70075-50ug
20x50 ug	70075				
MitoView™ 720	720/758 nm**	Cy®5, Cy®7**	No†	50 ug	70068-T
20x50 ug	70068				

* MitoView™ 633 also has red fluorescence in the Cy®3 channel and is not recommended for use with other red dyes.
**While optimal for Cy®7 settings, MitoView™ 720 is bright enough to be imaged in the Cy®5 channel.
† Dyes localize to the cytoplasm after mitochondrial depolarization, but still retain fluorescence.
‡ Reacts covalently with mitochondrial proteins for staining that is retained after fixation and permeabilization.

Find the Right Dye for Your Application

MitoView™ 405

MitoView™ 405 is a blue fluorescent mitochondrial dye with absorbance/emission at 398/440 nm, suitable for detection by confocal microscopy or flow cytometry using settings for DAPI or Pacific Blue®. The dye is membrane permeable and becomes brightly fluorescent upon accumulation in the mitochondrial membrane. Mitochondrial localization is dependent on mitochondrial membrane potential; when membrane potential is disrupted the dye relocalizes to the cytoplasm, but still retains fluorescence. The dye is designed for use in live cells and is not fixable. MitoView™ 405 is a replacement for our original MitoView™ Blue*, and has improved photostability.

MitoView™ Green

MitoView™ Green is a green fluorescent mitochondrial dye with properties similar to those of MitoTracker® Green FM. The dye is non-fluorescent until it partitions into the mitochondrial membrane. The staining relies on mitochondrial mass, not on mitochondria membrane potential. Thus, the dye can be used to stain mitochondria in both live cells and fixed cells. MitoView™ Green may be somewhat membrane potential-dependent in yeast cells.

Note: For optimal staining of mitochondria in fixed cells or tissue sections, we recommends using one our Mitochondrial Marker Antibodies, available with a wide selection of bright and photostable CF® Dyes and other labels.

MitoView™ 633

MitoView™ 633 is a far-red fluorescent mitochondrial dye with absorbance/emission at 622/648 nm. The dye is membrane-permeant and becomes brightly fluorescent upon accumulation in the mitochondrial membrane. Staining is dependent on mitochondrial membrane potential, and can be used to monitor mitochondrial membrane potential in intact cells. The dye is designed for use in live cells, and is not fixable. Note: The optimal detection settings for MitoView™ 633 are the same as for Cy®5 and other far-red dyes. However, the dye also has visible red fluorescence and can be imaged using Cy®3 settings as well. As a consequence, it may not be possible to use the dye for two-color imaging with other red probes.

MitoView™ 650

MitoView™ 650 is a far-red fluorescent mitochondrial dye that is not dependent on mitochondrial membrane potential. The dye has excitation/emission at 644/670 nm for the Cy®5 channel. Unlike MitoView™ 633, it does not bleed into the visible red channel, and so can be combined with red probes for multicolor imaging. The dye fluorescence is not lost after mitochondrial depolarization or fixation, but localization becomes non-specific.

MitoView™ 720

MitoView™ 720 is a near-infrared mitochondrial dye with absorbance/emission at 720/758 nm. While optimally detected using Cy®7 settings, the dye is bright enough to be imaged in the Cy®5 channel, and can be combined with visible red fluorescent probes. Mitochondrial localization is dependent on mitochondrial membrane potential; when membrane potential is disrupted the dye relocalizes to the cytoplasm but still retains fluorescence.

More Mitochondrial Dyes

In addition to MitoView™ Dyes, Biotium also offers several classical dyes for measuring mitochondrial membrane potential. These include JC-1, a ratiometric dye that forms red aggregates in healthy cells, which are reduced to the green monomeric state when mitochondrial membrane potential is lost. We also offer TMRM and TMRE, two red fluorescent dyes that are used to quantitatively measure mitochondrial membrane potential using the Nernst equation.

To view our wide selection of other cellular stains, visit our Cellular Stains technology page or see our Cellular Stains Brochure.

*Note: MitoView™ Blue (70052) has been discontinued and replaced by the improved MitoView™ 405. The original MitoView™ Blue will be available for purchase as a special order while supplies last. Contact techsupport@biotium.com to inquire about availability.

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