MITO-ID® Membrane potential detection kit

The only mitochondria membrane potential assay that monitors energetic status using a simple mix-and-read, no-wash protocol

Enzo Life Sciences MITO-ID® Membrane Potential Detection Kit is a mitochondria tracker dye including a dual-emission cationic dye. It measures the mitochondrial membrane potential (MMP) in live cells. In energized or active cells, the MITO-ID® Membrane Potential dye rapidly accumulates as orange-fluorescent aggregates in the mitochondria due to their relative negative charge, while it exists as a green-fluorescent monomer in the cytosol. However, in cells with compromised MMP, the MITO-ID® Membrane Potential dye exists primarily as green-fluorescent monomers throughout the cytosol and no longer exhibits orange fluorescence in the mitochondria. A widely used uncoupler of mitochondrial oxidative phosphorylation (CCCP) is provided as a positive control for monitoring loss in mitochondrial membrane potential.

Cell-based assays for evaluating the functional status of mitochondria are useful tools for elucidating the role of mitochondrial activity in drug-induced toxicity, the apoptosis cascade and other cellular and biochemical processes. The loss of the mitochondrial membrane potential (MMP) is often associated with early stages of apoptosis. The collapse of MMP coincides with the opening of the mitochondrial permeability transition pores, leading to the release of cytochrome C into the cytosol, which in turn triggers other downstream events in the apoptotic cascade.

Citations: 48 View Online »

Ordering Information Order Online »

ENZ-51018-0025	25 tests
ENZ-51018-K100	100 tests

Manuals, SDS & CofA View Online »

- Dual-emission dye fluoresces either green or orange depending upon mitochondrial membrane potential status
- 10X more sensitive than JC-1 with superior aqueous solubility
- True mix-and-read homogeneous assay for live cells
- Suitable for chemical/environmental toxicity screening
- Optimized for fluorescence microscopy, flow cytometry and microplate reader
- Suitable for high-throughput applications

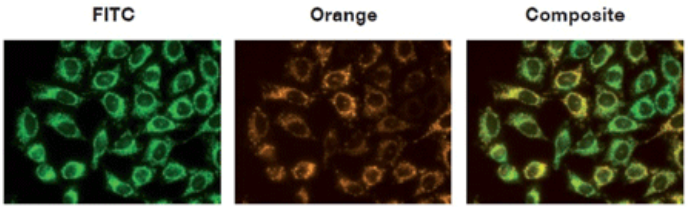

Figure 1: The mitochondria of HeLa cells were stained with MITO-ID® Membrane Potential reagent, and visualized by epifluorescence microscopy. Orange fluorescent aggregates are localized in the mitochondria (Orange channel), while green fluorescent monomers mainly stain the cytosol (FITC channel).

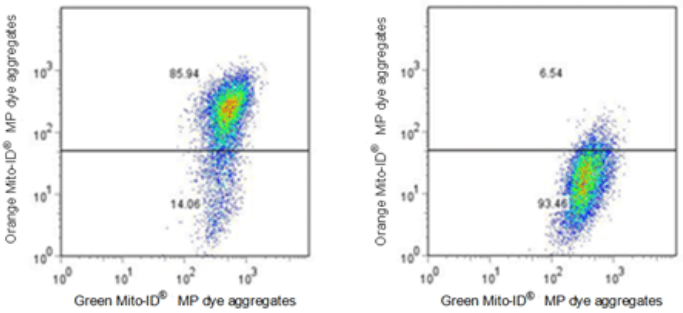

Figure 2: Flow Cytometric Analysis of Control and Treated Cells. Jurkat cells were untreated (left) and were treated with 1 µM CCCP for 15 mins (right). Cells were then stained with Enzo MITO-ID® Membrane Potential Dye, and run on a FACS Calibur instrument.

Handling & Storage

Handling	Protect from light. Avoid freeze/thaw cycles.
Short Term Storage	-20°C
Long Term Storage	-80°C
Shipping	Dry Ice

Regulatory Status

RUO - Research Use Only

Product Details

Alternative Name	Mitochondrial oxidative phosphorylation
Application	Flow Cytometry, Fluorescence microscopy, Fluorescent detection, HTS
Application Notes	The MITO-ID® Membrane Potential Detection Kit has been optimized for measurement of mitochondria membrane potential (MMP) and cell viability by conventional fluorescence microscopy and flow cytometry.
Contents	MITO-ID® MP Detection Reagent Necrosis Detection Reagent CCCP Control 10X Assay Buffer 1 50X Assay Buffer 2
Quality Control	In fluorescence microscopy assay, MITO-ID® Membrane Potential dye is a dual-emission probe emitting in the green channel in the cytosol and in the orange channel within the mitochondria. When a perturbing drug such as CCCP is added, the dye exists primarily as green-fluorescent monomers in the cytosol and no longer exhibits orange fluorescence in the mitochondria. Necrosis detection reagent detects dead cells shown in the red channel.

Technical Info / Product Notes

The MITO-ID® Membrane potential detection kit is a member of the CELLESTIAL® product line, reagents and assay kits comprising fluorescent molecular probes that have been extensively benchmarked for live cell analysis applications. CELLESTIAL® reagents and kits are optimal for use in demanding cell analysis applications involving confocal microscopy, flow cytometry, microplate readers and HCS/HTS, where consistency and reproducibility are required.

Toxicology Application Note:

Use of 3D Cultured Human iPSC-Derived Hepatocytes for Long-Term Hepatotoxicity Studies

Monitor Mitochondrial Membrane Potential in Cancer Cell Lines with a Dual-emission Fluorescent Dye

Last modified: May 29, 2024

ENZO LIFE SCIENCES, INC.
Phone: 800.942.0430
info-usa@enzolifesciences.com

European Sales Office
ENZO LIFE SCIENCES (ELS) AG
Phone: +41 61 926 8989
info-eu@enzolifesciences.com

Belgium, The Netherlands & Luxembourg
Phone: +32 3 466 0420
info-be@enzolifesciences.com

France
Phone: +33 472 440 655
info-fr@enzolifesciences.com

Germany
Phone: +49 7621 5500 526
info-de@enzolifesciences.com

UK & Ireland
Phone (UK customers): 0845 601 1488
Phone: +44 1392 825900
info-uk@enzolifesciences.com