Monitor Mitochondrial Potential Changes

MITO-ID® Membrane Potential Kits (ENZ-51018/51019)

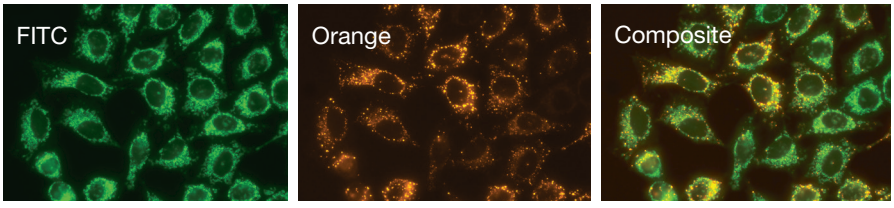
Monitors Mitochondrial Membrane Energetic Status Using a Simple Mix-and-Read, No-Wash Protocol

Mitochondria play a central role in cellular metabolism, bioenergetics, and apoptosis. Decreased mitochondrial function is known to be a major contributor to drug-associated toxicity in various organs. Growing FDA emphasis on evaluating the mitotoxic effects of drug candidates has increased the importance of determining such effects early in the drug development process.

The MITO-ID® Membrane Potential Cytotoxicity Kit measures fluctuations in mitochondrial membrane potential (MMP) utilizing a cationic dual-emission dye that exists as green fluorescent monomers in the cytosol, and accumulates as orange fluorescent J-aggregates in the mitochondria. Mitochondria having a low membrane potential will accumulate low concentrations of dye and will exhibit green fluorescence while more highly polarized mitochondria will exhibit orange-red fluorescence. Cells exhibit a shift from orange to green fluorescence as mitochondrial function becomes increasingly compromised. Unique HTS assay monitors mitochondrial membrane potential in real-time without wash step or medium removal.

Key Features

- Ultrasensitive dual emission mitochondrial membrane potential probe shifts from orange (590nm) to green (525nm) when membrane potential declines
- At least 10-fold more sensitive to membrane potential loss than the classical carbocyanine dye, JC-1
- Easier to use and more reproducible than JC-1, due to higher photostability and better aqueous solubility
- Stringently manufactured, to control and eliminate non-specific assay artifacts

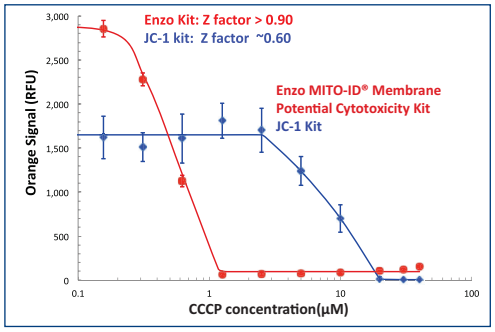


The mitochondria of HeLa cells were stained with MITO-ID® Membrane Potential dye and visualized by epifluorescence microscope. Orange fluorescent aggregates are localized in the mitochondria, while green fluorescent monomers mainly stain the cytosol.

Platforms supported:

Microscopy **Flow Cytometry** **Microplate**

Detect Mitochondrial Perturbations with 10 times More Sensitivity than JC-1



Using a conventional fluorescence microplate reader, MITO-ID® Membrane Potential dye was shown to decrease as a function of CCCP concentration (decrease in orange signal). MITO-ID® Membrane Potential dye is at least 10-fold more sensitive to mitochondrial potential loss than the commonly used dye, JC-1. The high Z-factor (≥0.9) obtained using the MITO-ID® Membrane Potential dye arises from the no-wash protocol.

RELATED PRODUCTS	PRODUCT #
Acridine Orange (Ultra Pure)	ENZ-52405
DiOC6(3) Iodide (Ultra Pure)	ENZ-52303
JC-1 (Ultra Pure)	ENZ-52304
JC-10 [Enhanced JC-1] (Ultra Pure)	ENZ-52305
LYSO-ID® Red Detection Kit (GFP-CERTIFIED®)	ENZ-51005
MITO-ID® Red Detection Kit (GFP-CERTIFIED®)	ENZ-51007
MITO-ID® Green Detection Kit	ENZ-51022
Nile Red (Ultra Pure)	ENZ-52551

Global Headquarters
ENZO LIFE SCIENCES, INC.
Ph: 800.942.0430
info-usa@enzolifesciences.com

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

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

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

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

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

For local distributors and detailed product information visit us online: **www.enzolifesciences.com**

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