

TREVIGEN® Product Data

For Research Use Only. Not For Use In Diagnostic Procedures.

MitoShift™ Kit

Mitochondrial Membrane Potential ($\Delta\Psi_m$) Disruption

Catalog #: 6305-100-K

kit contents:

Component	Catalog #	Amount Provided	Storage
*MitoShift™ (1 mM)	6305-100-01	100 μ l	4°C
Valinomycin	6305-100-02	100 μ l	4°C
10X Reaction Buffer	6300-100-02	30 ml	4°C
Stabilizer Solution	6300-100-03	5 ml	4°C

Description: Cellular energy produced during mitochondrial respiration is stored as an electrochemical gradient across the mitochondrial membrane. This accumulation of energy in healthy cells creates a mitochondrial transmembrane potential, called delta-psi or $\Delta\Psi_m$, that enables the cell to drive the synthesis of ATP. Disruption of $\Delta\Psi_m$ has been shown to be one of the first intracellular changes following the onset of apoptosis.

MitoShift™ (tetramethylrhodamine ethyl ester) is a cationic dye that displays a distinctive shift in its fluorescence spectra upon mitochondrial uptake. The distribution of the dye across the mitochondrial membrane is directly related to the mitochondrial potential and the extent of the wavelength shift is used to quantitate $\Delta\Psi$ using a ratiometric approach. The presence or absence of fluorescence can be observed by microscopy or analyzed by flow cytometry. The dye has an absorption/emission maxima of 510-560/>590. MitoShift can be used to rapidly evaluate the viability of a cell population, quickly estimate the effect of drugs or other cytotoxins on a cell population, and detect early apoptosis in known models.

Physical State: MitoShift is provided in DMSO. The final reagent concentration is 1 mg/ml (1 mM).

Storage: Stored at 4°C, shielded from light and with desiccant. For extended storage, freeze in working aliquots in a manual defrost freezer to avoid freeze-thaws.

Applications: MitoShift is used for the assessment of mitochondrial potential ($\Delta\Psi_m$) by fluorescence microscopy, confocal microscopy and flow cytometry.

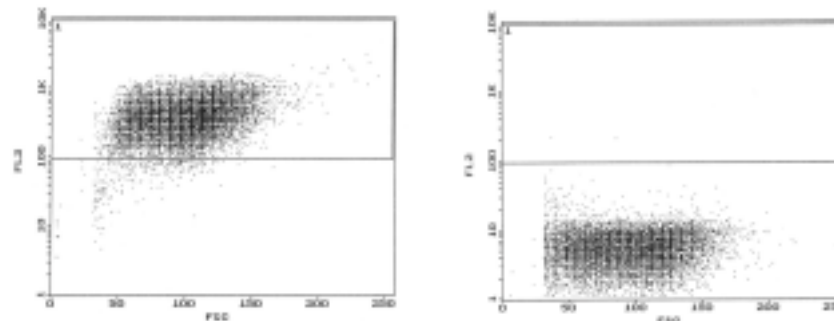


Fig 1.

Healthy WEHI 7.1 mouse lymphocytes (a) and cells treated with etoposide for 2 hours with overnight recovery (b) were analyzed by flow cytometry using the PE channel. A distinct shift in the fluorescence occurs when the mitochondrial potential is disturbed in the apoptotic cells.

Reference:

Scaduto, R., L.W. Grotyohann. 1999 Measurement of Mitochondrial Membrane Potential Using Fluorescent Rhodamine Derivatives. *Biophysical Journal* **76**:469-477.

Fink, C., F. Morgan, L.M. Loew 1998. Intracellular fluorescent probe concentration by confocal microscopy. *Biophysical Journal* **75**:1648-1658.

Ehrenberg, B., V. Montana, M.D. Wei, J. P. Wuskell and L.M. Loew. 1988 Membrane potential can be determined in individual cells from the Nernstian distribution of cationic dyes. *Biophysical Journal* **53**:785-794.

© 2001 Trevigen, Inc. All Rights Reserved. Trevigen is a registered trademark and MitoShift is a trademark of Trevigen, Inc. v10522

TREVIGEN®

8405 Helgerman Court, Gaithersburg, MD 20877 USA

Voice: 1-800-TREVIGEN (1-800-873-8443) • 301-216-2800

Fax: 301-216-2801 • e-mail: info@trevigen.com • www.trevigen.com

MitoShift™ Kit

Catalog #: 6305-100-K

Storage: 4°C

TREVIGEN®

1-800-873-8443