



CELL TECHNOLOGY, INC

Mito-Flow

A Flow Cytometry Assay for Mitochondrial Membrane Potential

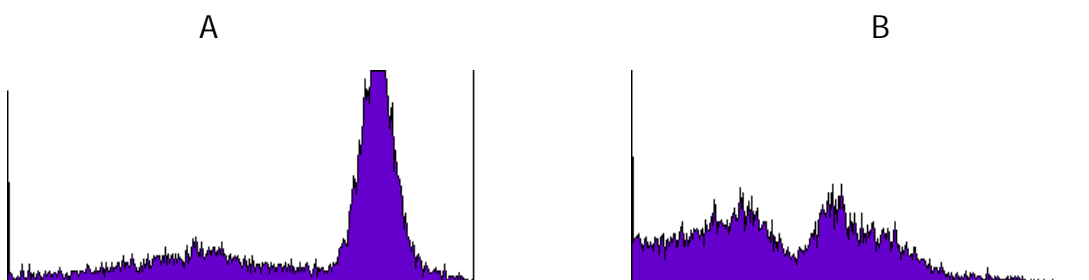


Fig 1. Jurkat Cells were stimulated with Staurosporine (B) or DMSO (A) for 3 hours. Cell were then stained with Mito Fluoro and analyzed by Flow Cytometry.

Key Benefits

- Cell Permeable, Easy one color Assay for Flow Cytometry
- One Step no Wash, Adaptable for High Throughput format
- Can be used with both suspension and mono-layer cell lines
- Compatible with other Antibodies or Stains e.g.: Fluorescent protein expression vectors

Background

The loss of mitochondrial membrane potential ($\Delta\Psi$) is a hallmark for apoptosis. The mitochondrial permeability transition is an important step in the induction of cellular apoptosis. During this process, the electrochemical gradient (referred to as $\Delta\Psi$) across the mitochondrial membrane collapses. The collapse is thought to occur through the formation of pores in the mitochondria by dimerized Bax or activated Bid, Bak, or Bad proteins. Activation of these pro-apoptotic proteins is accompanied by the release of cytochrome c into the cytoplasm (1-4).

Assay Principle

Cell Technology's Mito Flow assay utilizes a derivative of Rhodamine to visualize mitochondrial membrane potential (5-7). The Mito Flow reagent is a cell permeable cationic dye that has a strong fluorescent signal in the red region and exhibits low membrane potential independent (non specific) binding and toxicity. In healthy cells



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Mito Flow reagent is accumulated by the mitochondria in proportion to the DeltaPsi (membrane potential). In most cell lines, accumulation of Mito Flow reagent in the mitochondria results in a higher fluorescence intensity. In apoptotic cells, where the mitochondrial membrane potential is compromised, Mito Flow reagent does not accumulate in the mitochondria and these cells exhibit a lower fluorescence signal.

Kit Content

Vial of Mito Flow Dye Part#.....4004
Bottle of 10X dilution buffer Part#.....3004

Mito Flow Assay

Catalog #	Size*	Price (US\$)
Flo200-2	100 Tests	225
Flo200-3	500 Tests	425

References Cited in the Manual:

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3. Basanez, G., Nechushtan, A., Drozhinin, O., Chanturiya, A., Choe, E., Tutt, S., Wood, K. A., Hsu, Y. T., Zimmerberg, J., and Youle, R. J. Bax, but not Bcl-XL decreases the lifetime of planar phospholipid bilayer membranes at subnanomolar concentrations. *Proc. Natl. Acad. Sci. USA* 96: 5492-5497 (1999).
4. Luo, X., Budihardjo, I., Zou, H., Slaughter, C., and Wang, X. Bid, a Bcl-2 interacting protein, mediates cytochrome c release from mitochondria in response to activation of cell surface death receptors. *Cell* 94: 481-490 (1998).
5. Ehrenberg B, Montana V, Wei MD, Wuskell JP, Loew LM. Membrane potential can be determined in individual cells from the nernstian distribution of cationic dyes. *Biophys J.* 1988 May; 53(5): 785-94.
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Ordering Information

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