

Product datasheet

Mitochondrial Permeability Transition Pore Assay Kit ab239704

1 Image

Overview

Product name	Mitochondrial Permeability Transition Pore Assay Kit
Detection method	Fluorescent
Sample type	Adherent cells, Suspension cells
Assay type	Cell-based
Product overview	Mitochondrial Permeability Transition Pore Assay Kit (ab239704) provides a fast, direct method of measuring cell death by measuring MPTP opening rather than relying on mitochondrial membrane potential alone.

Mitochondria are the power centrals of the cell and play an essential role in energy production. Damage to mitochondria activates signaling pathways that induce apoptosis. The mitochondrial permeability transition pore (MPT pore or MPTP) is a non-specific channel formed by components of the inner and outer mitochondrial membranes and appears to be involved in the release of mitochondrial components during cell death. In healthy cells, MPTP's flicker between open and closed states but during cell death MPTP's dramatically alter the permeability of the mitochondria. Cytochrome c release and loss of mitochondrial membrane potential are subsequent to continuous pore activation.

Platform	Flow cytometer
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Properties

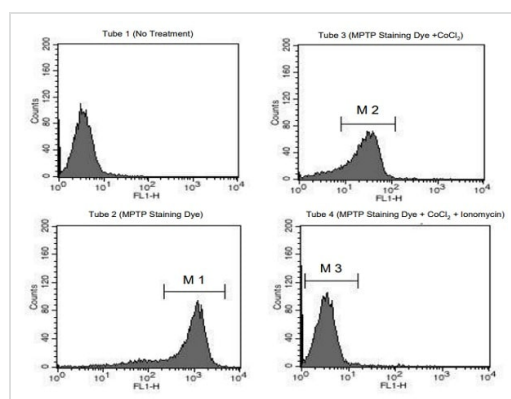
Storage instructions	Store at -20°C. Please refer to protocols.
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Components	100 tests
CoCl ₂	1 x 1ml
Ionomycin	1 x 1ml
MPTP Staining Dye	5 x 50µg
MPTP Wash Buffer	2 x 100ml

Relevance

The mitochondrial permeability transition pore (mPTP or MPTP; also referred to as PTP, mTP or MTP) is a protein that is formed in the inner membrane of the mitochondria under certain pathological conditions such as traumatic brain injury and stroke. Opening allows increase in the permeability of the mitochondrial membranes to molecules of less than 1500 Daltons in molecular weight. Induction of the permeability transition pore, mitochondrial membrane permeability transition (mPT or MPT), can lead to mitochondrial swelling and cell death through apoptosis or necrosis depending on the particular biological setting.

Images



Jurkat cells were incubated with the reagents of the Mitochondrial Permeability Transition Pore Assay Kit and analyzed by flow cytometer

Tube 1: sample without treatment - used for instrument setup; Tube 2: sample stained with MPTP Staining Dye showing cumulative fluorescence signal from both cytoplasm and mitochondria; Tube 3: sample stained with MPTP Staining Dye and treated with CoCl₂ showing mitochondrial fluorescence only; Tube 4: samples with all reagents showing the lowest fluorescence. The difference in fluorescence between tubes 3 and 4 indicates the degree of MPTP activation and subsequent depolarization of the mitochondrial membrane

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