

## Mitochondrial Membrane Potential Detection Kit (TMRE)

## Chemical Properties

CAS No. :

Formula:

Molecular Weight:

Storage: Keep away from direct sunlight  
Store at -20°C  
Actual storage temperature shall be subject to the COA.

## Biological Description

## Description

The Targeted Mol Mitochondrial Membrane Potential Detection Kit (TMRE) is a fluorescent probe specifically designed for rapid detection of dynamic changes in mitochondrial membrane potential ( $\Delta\Psi_m$ ). Mitochondrial membrane potential ( $\Delta\Psi_m$ ) refers to the potential difference on both sides of the inner membrane of mitochondria. Its formation and maintenance are crucial for mitochondrial energy metabolism, material transport, and cell survival, and are important indicators reflecting mitochondrial function.

Tetramethylrhodamine Ethyl Ester (TMRE) is a membrane permeable cationic orange red fluorescent dye. Its chemical structure contains a tetramethylrhodamine nucleus and an ethyl ester group, with a lipophilic ethyl ester group allowing it to freely penetrate cell membranes. The principle of TMRE detecting changes in mitochondrial membrane potential is as follows: when the mitochondrial membrane potential is normal, TMRE enters the mitochondrial matrix through membrane potential drive, aggregates after protonation, and emits orange red fluorescence (excitation wavelength 549 nm, emission wavelength 574 nm); When the membrane potential is depolarized, the fluorescence intensity significantly decreases. Therefore, detecting changes in fluorescence intensity can reflect mitochondrial functional status and can be used for early detection of cell apoptosis.

This reagent kit has a wide range of applications and is compatible with various sample types such as cells, tissues, and purified mitochondria. It can also be adapted to various detection instruments such as fluorescence microscopes, laser confocal microscopes, fluorescence spectrophotometers, and flow cytometers.

**Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins**

This product is for Research Use Only · Not for Human or Veterinary or Therapeutic Use

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