Mitochondrion Red Probe (AIE)

A1456401

Storage at -20°C (12 months). Avoid freeze/thaw cycle. Protect from light.

Introduction:

Mitochondrion Red Probe (AIE) is a tetraphenylethylene derivative developed based on the AIE principle, with typical AIE characteristics. The product has cell transmembrane ability; simply by incubating with cells, transmembrane transport can be completed through passive transport.

Product Characteristics:

Mitochondrion Red Probe (AIE) has excellent aggregation-induced emission properties. It can specifically label lipid droplet structures in various living cells and fixed cells by targeting the polar environment of lipid droplets. Due to the change in aggregation state before and after binding to lipid droplets, its fluorescence intensity will produce extremely obvious changes, while the fluorescent probes that do not bind to lipid droplets basically do not emit fluorescent signals.

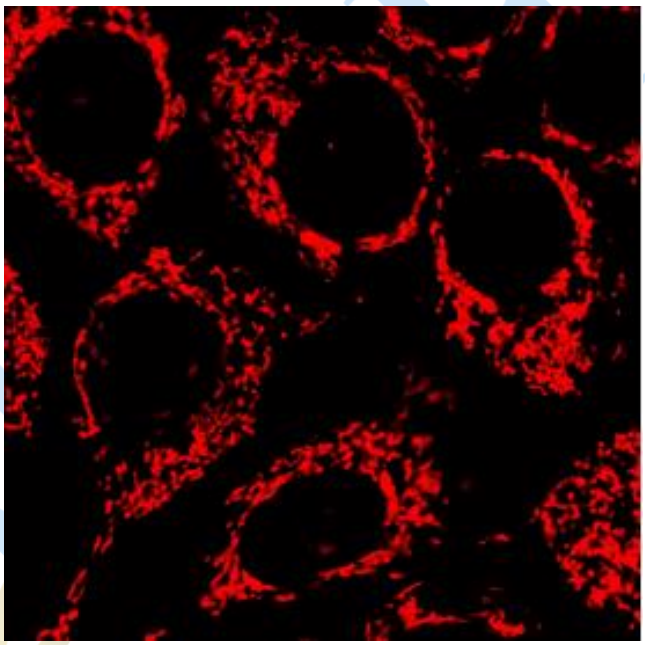

Figure 1. Laser confocal imaging effect diagram of HeLa cells.

Different from common dyes, Mitochondrion Red Probe (AIE) can be excited by multiple excitation wavelengths including 488 nm and 543 nm, and has a large Stokes shift, which can be clearly distinguished from other dyes, reducing the possibility of crosstalk in imaging. At the same time, Mitochondrion Red Probe (AIE) has good biocompatibility and high imaging concentration, and can ensure stable fluorescence signal output even in the state of multiple scans, making it very suitable for multiple imaging.

Product Properties:

Product Properties	Details
Formula	$C_{40}H_{48}F_6N_6P$
Molecular Weight	751 g/mol
Purity	≥98% (HPLC)
Working Concentration	1-20 μM
Full Width at Half Maximum	600 nm-725 nm
Max Absorption/Emission Wavelength (nm)	λabs=442 nm / Em= 654 nm

Product Advantages:

1. Relatively low cytotoxicity, suitable for live cell imaging.
2. Strong anti-photobleaching ability; the fluorescence intensity remains unchanged after 40 laser scans totaling 15 minutes.
3. Low background signal, no need for washing, enabling rapid imaging.

Experimental Methods:

1. Preparation of dye stock solution: After a brief centrifugation, add 400 μL of high-quality anhydrous DMSO to a tube of Mitochondrion Red Probe (AIE) solution, pipette to mix evenly, and prepare a 10 mM Mitochondrion Red Probe (AIE) stock solution. Aliquot appropriately and store protected from light at -20 ℃ or lower.
2. Preparation of dye working solution: Take 1 μL of Mitochondrion Red Probe (AIE) stock solution and add it to 1-2 mL of cell culture medium or an appropriate buffer (e.g., PBS) to obtain an Mitochondrion Red Probe (AIE) working solution with a final concentration of 5-10 μM. The final concentration can be adjusted according to experimental needs.
3. Cell staining: Incubate adherent cells with an appropriate amount of the working dye solution for 15-30 minutes (preferably in a cell incubator). No washing is required. Observe using a confocal fluorescence microscope or a fluorescence microscope, set the excitation wavelength to 488 nm or 543 nm, and collect signals at 550-700 nm.

Matters needing attention:

1. Please perform a brief centrifugation before use.
2. When using for the first time, prepare the stock solution first, aliquot it, and store at -20℃ to avoid repeated freezing and thawing.
3. For your safety and health, please wear a lab coat and disposable gloves during operation.
4. This product is only suitable for scientific research purposes.