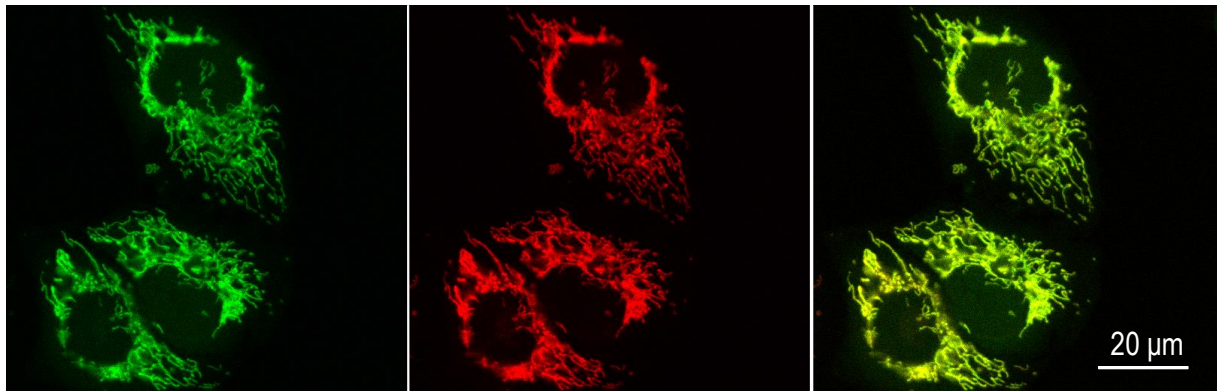


Product Specification

AIE™ Mitochondria Red



Product Description

- This product can selectively stain the mitochondria with red fluorescence.
- The cells co-cultured with the product can be visualized using a fluorescent microscopy at 488nm excitation. Red signals will be received in the 551-638 nm.
- This product is very sensitive to mitochondrial membrane potential. This product has excellently specific response to mitochondria in live cells.
- This product possesses excellent photostability, the fluorescence signal can directly represent the difference in mitochondrial membrane potential. Tracing the change in intracellular mitochondrial membrane potential, this probe could be used for indicating the increased mitochondrial membrane potential in tumor cells for cancer research or the decreased mitochondrial membrane potential in apoptotic cells for drug screening.
- This product can evaluate the sperm vitality.

Demonstrations

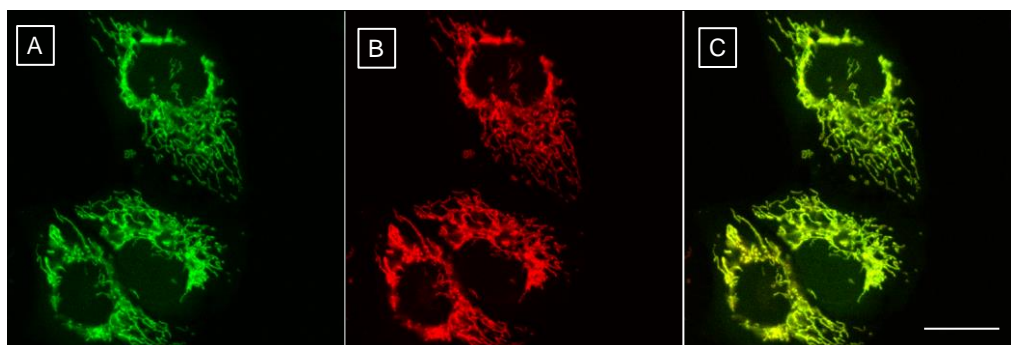


Figure 1. Confocal imaging of HeLa cell stained with (A) CellLight® Mitochondria-GFP, BacMam 2.0 for overnight and (B) AIE™ Mitochondria Red (5 μ M) for 45min. (C) panels A and B merged. Scale bar: 20 μ m. Excitation: 488 nm; for AIE™ Mitochondria Red, emission: 561-656 nm; for Mitochondria-GFP Probe, emission: 469-555 nm.

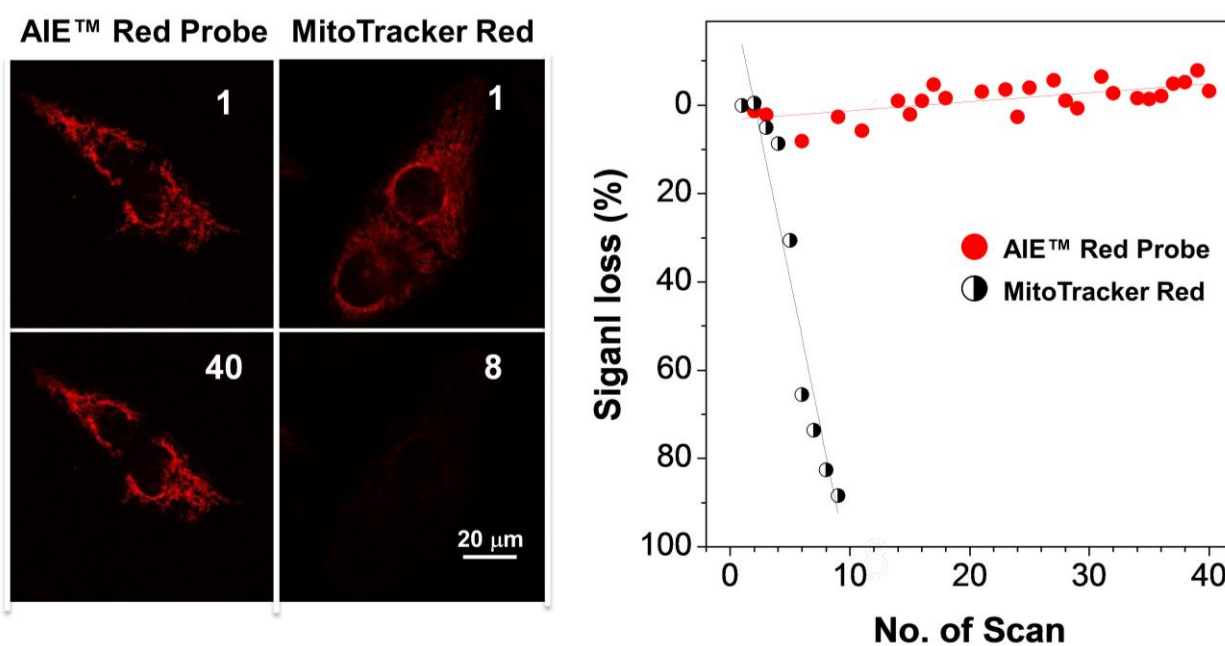


Figure 2. Confocal images of HeLa cells stained with AIE™ Mitochondria Red and MitoTracker Red taken under continuous excitation at 488 nm for 40 scans and 560 nm for 9 scans (scale bar: 20 μ m) and the signal loss (%) of fluorescence intensity of AIE™ Mitochondria Red and MitoTracker Red with an increasing number of scans.

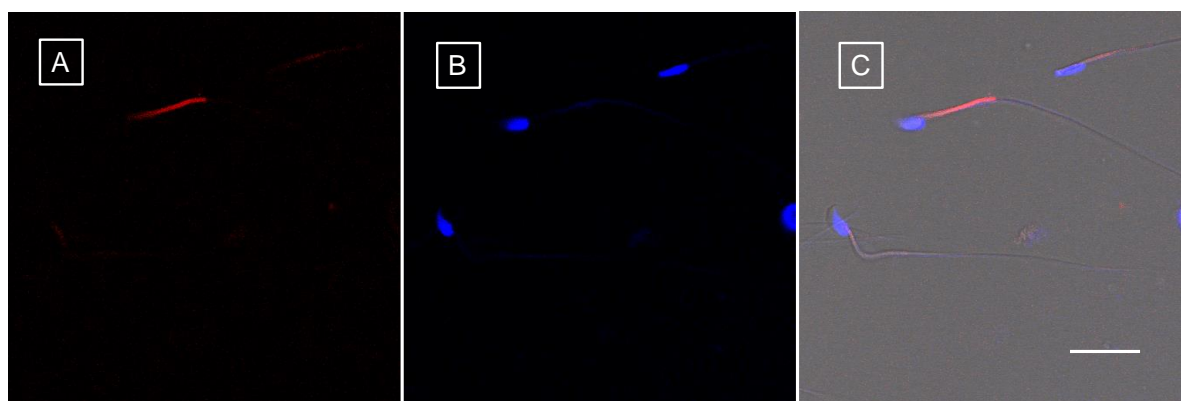


Figure 3. Confocal images of mouse sperm cells stained with (A) AIE™ Mitochondria Red Probe (5 μ M) for 1 h and (B) Hoechst 33342 (1 μ g/mL) for 10 min; and (C) the merged picture of A, B and the bright field image. Excitation wavelength: 488 nm (for AIE™ Mitochondria Red Probe) and 405 nm (for Hoechst 33342). Scale bar: 20 μ m.

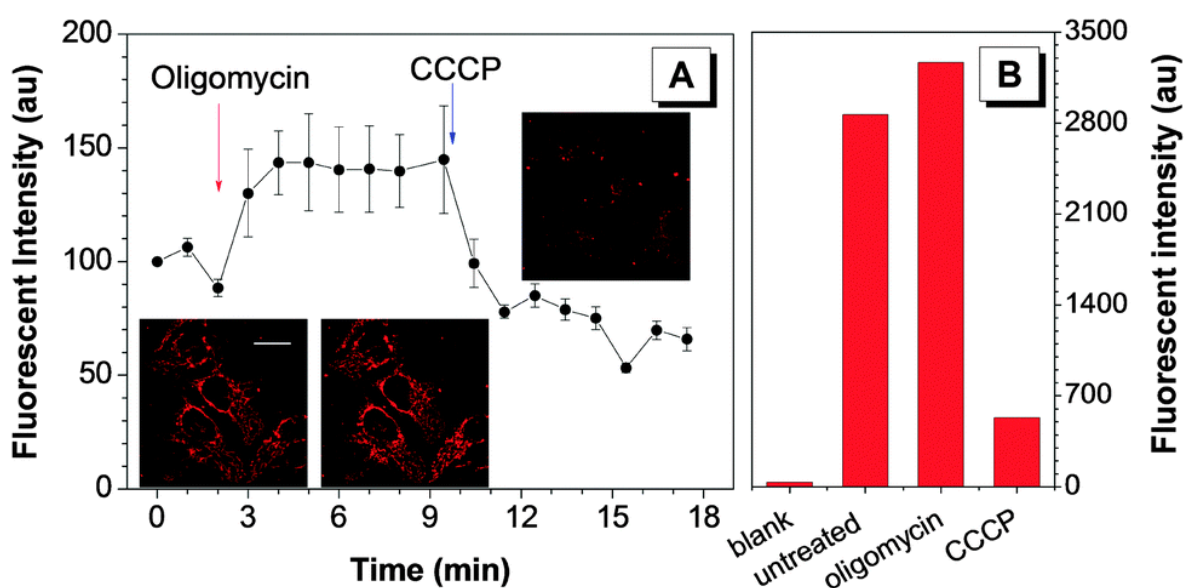


Figure 4. (A) Changes in emission intensity of HeLa cells stained with AIE™ Mitochondria Red Probe (5 μ M) upon treatment with 10 μ g mL⁻¹ oligomycin and then 20 μ M CCCP. Excitation wavelength: 488 nm. Inset: snapshots of the cells in different periods of time during the treatment of stimulants. Scale bar: 20 μ m. (B) The fluorescence intensity of the unstained blank HeLa cells, untreated AIE™ Mitochondria Red Probe stained HeLa cells, oligomycin treated AIE™ Mitochondria Red Probe stained HeLa cells and CCCP treated AIE™ Mitochondria Red Probe stained HeLa cells analysed by flow cytometry.

Recommended storage condition

Store away from sunlight at 2-8 °C

Product parameters

Purpose	Mitochondria staining
Color:	Red powder
Imaging platform:	Fluorescence microscopy Laser Scanning Confocal Microscope
Pack size and quantity:	10 µmol
Detection method:	Fluorescence
Excitation/ Emission (nm):	450±50 / 670±50
Recommended transport condition:	Room temperature
Product declaration:	For Research Use Only. Not for use in diagnostic procedures.

AIEgen Probe for Mitochondria Targeting (Red)

Introduction

- This product stains the living cell mitochondria with red fluorescence.
- After incubation with this product **WITHOUT WASHING**, living cells can be observed under fluorescence microscope and red signals can be obtained at following optical condition:
$$\text{Excitation / Emission} = 488 \pm 30 / 670 \pm 50 \text{ nm}$$
- The product has superior photostability compared to other commercial mitochondrial stains. Signals can be retained after 50 scans on confocal microscope with the 488 nm laser.

Material Preparation and Microscope Recommendation

- **Stock solution prepare:** AIE™ Mitochondria Red (5 mM) stock solution is prepared with the 10 μmol of AIE™ Mitochondria Red in 2 mL DMSO.
- **Fluorescence Microscope:** The HeLa cells could be imaged under a fluorescence microscope ($\lambda_{\text{ex}} = 488 \text{ nm}$)
Note: Confocal Microscopy – Recommended with 405 nm laser as excitation (Laser power at researcher's discretion).

Before Your Experiment, You might NEED

1 Living cells

3 DMSO

5 Milliphore water

2 Culture media

4 Buffer PBS solution

Protocol (Recommended)

Cell Culture

The HeLa cells were cultured in minimum essential medium containing 10 % fetal bovine serum and antibiotics (100 units/mL penicillin and 100 μ g/mL streptomycin) in a 5 % CO₂ humidity incubator at 37 °C.

Cell Imaging

1. **Prepare:** HeLa cells were grown overnight on a petri dish (35 mm) with a coverslip.
2. **Staining:** The live cells were stained with 5 μ M of AIETM Mitochondrial Red for 45 min (by adding 2 μ L of a 5 mM stock solution in DMSO to 2 mL culture medium).
3. **Wash:** *(Skip) free of washing.*
4. **Before imaging:** No need to add any imaging media, and please proceed to next step.
5. **Ready to go:** The cells were observed under a fluorescent microscope through the observation window.

Note

Drill a hole of around 10 mm diameter in the middle of the dish. Place cover slide over the dish using paraffin.

Fluorescent Spectrum

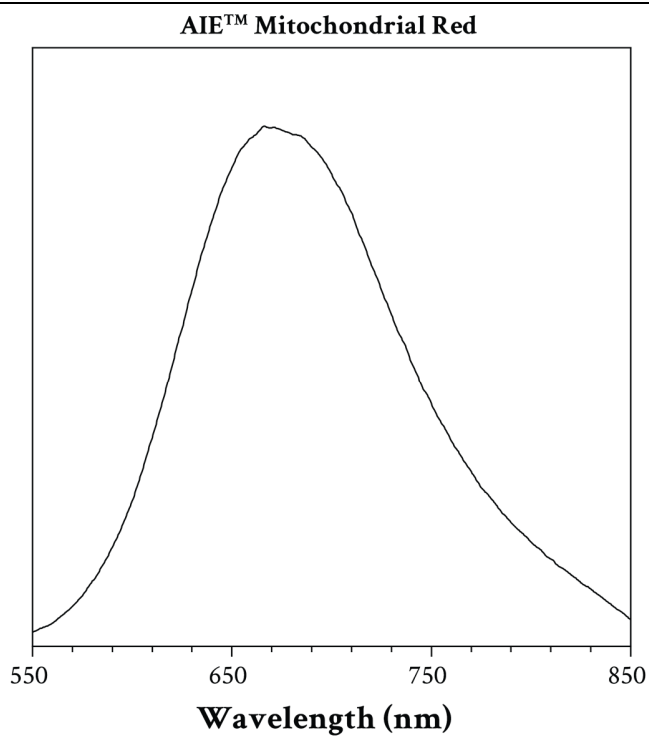


Figure 1 Photoluminescent spectrum of AIETM Mitochondrial Red probe in aggregation state. Excitation: 450 nm

Reference

1. Zhao, N.; Chen, S.; Hong, Y.; Tang, B. Z. "A red emitting mitochondria-targeted AIE probe as an indicator for membrane potential and mouse sperm activity" *Chem. Comm.* **2015**, 51, 13599-13602.
2. Optical information and suggested storage conditions:

Item	Ex/Em	Qty	Storage Condition*
AIE™ Mitochondria Red	488 / 670 nm	10 μmol	<ul style="list-style-type: none">• ≤-20 °C (Upon receive this product)• Avoid Light• Keep Dry

* Remember to warm up to room temperature upon opening the vial