

Tetramethylrhodamine (TMRM)

Catalog Number I34361, T668

Pub. No. MAN0016517

Rev. A.0

Table 1 Contents and storage

Product	Catalog No.	Amount	Concentration	Storage
Image-iT™ TMRM Reagent (Mitochondrial membrane potential indicator)	I34361	5 × 100 µL	100 µM (1000X) in DMSO	<ul style="list-style-type: none"> • Store in freezer (-5°C to -30°C) • Protect from light
Tetramethylrhodamine, Methyl Ester, Perchlorate (TMRM)	T668	25 mg	N/A	
Approximate fluorescence excitation and emission maxima: 548/574 nm.				

Product information

Healthy mitochondrial membranes maintain a difference in electrical potential between the interior and exterior of the organelle, referred to as a membrane potential. Tetramethylrhodamine, methyl ester (TMRM) is a cell-permeant dye that accumulates in active mitochondria with intact membrane potentials. If the cells are healthy and have functioning mitochondria, the signal is bright. Upon loss of the mitochondrial membrane potential, TMRM accumulation ceases and the signal dims or disappears. TMRM signal can be detected with fluorescence microscopy, flow cytometry, cell sorting, high throughput screening, and high content analysis.

TMRM has the following properties:

- Can be used for the live cell dynamic study of mitochondrial membrane potential, which is not fixable.
- Detectable with the RFP/TRITC filter set with the absorbance peak at 548 nm and emission peak at 574 nm.
- Multiplexable with green, deep red, violet and blue emission dyes, such as GFP, DAPI, Hoechst, HCS LipidTOX™, and LysoTracker™ Deep Red.

Before you begin

Caution	DMSO is known to facilitate the entry of organic molecules into tissues. Handle reagents containing DMSO using equipment and practices appropriate for the hazards posed by such materials. Dispose of the reagents in compliance with all pertaining local regulations. In case of contact with eyes, rinse immediately and thoroughly with water and seek medical advice. Always wear suitable laboratory protective clothing and gloves when handling this reagent.
Prepare stock solutions	<p>Image-iT™ TMRM Reagent (Cat. No. I34361) is provided as a 1000X concentrated stock solution at a concentration of 100 µM in DMSO. To use it, simply dilute the stock solution 1000X in cell growth or imaging medium.</p> <p>Tetramethylrhodamine, methyl ester (TMRM) (Cat. No. T668) is provided as 25 mg lyophilized powder. To prepare the stock solution, first dissolve the entire 25 mg lyophilized powder in 5 mL of DMSO to make a 10 mM solution. To prepare a stock solution at 100 µM, add 10 µL of the 10 mM solution into 990 µL of DMSO. Both the 10 mM and 100 µM solutions can be stored for 6 months in the freezer at -5°C to -30°C.</p>
Prepare staining solution	100 µM TMRM stock solution is at 1000X concentration. To prepare a 1X staining solution at 100 nM concentration, add 10 µL of the 100 µM stock solution to 10 mL of cell growth medium. For different applications and cell types, this concentration can be adjusted between 20 nM to 250 nM. Prepare and use the staining solution fresh for best results.

Cell staining protocol

1. Grow the cells.
2. Remove the cell growth medium.
3. Add cell staining solution to the cells.
4. Incubate for 30 minutes at 37°C.
5. *Optional:* For increased sensitivity, wash with PBS or similar buffer.
6. Analyze the cells:
 - For fluorescence microscopy or high content analysis, use TRITC/RFP filter settings.
 - For flow cytometry, use 488 nm laser for excitation and a 570 ±10 nm emission filter for detection or compatible settings.

Ordering information

Cat. No.	Product name	Amount
I34361	Image-iT™ TMRM Reagent	5 × 100 µL
T668	Tetramethylrhodamine, methyl ester, perchlorate (TMRM)	25 mg

Documentation and support

These high-quality reagents and materials must be used by, or directly under the supervision of, a technically qualified individual experienced in handling potentially hazardous chemicals. Read the Safety Data Sheet provided for each product; other regulatory considerations may apply.

Obtaining support

For the latest services and support information for all locations, go to thermofisher.com/support.

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- Search through frequently asked questions (FAQs)
- Submit a question directly to Technical Support (thermofisher.com/support)
- Search for user documents, SDSs, vector maps and sequences, application notes, formulations, handbooks, certificates of analysis, citations, and other product support documents
- Obtain information about customer training
- Download software updates and patches

SDS

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Revision	Date	Description
A	January 2017	New document.

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