Product Information

TMRE (Tetramethylrhodamine, ethyl ester)

Catalog Number: T4057

Product Size: 25 mg

Application Scope: Membrane potential staining

Parameters

Appearance: Red solid soluble in DMSO, DMF or EtOH

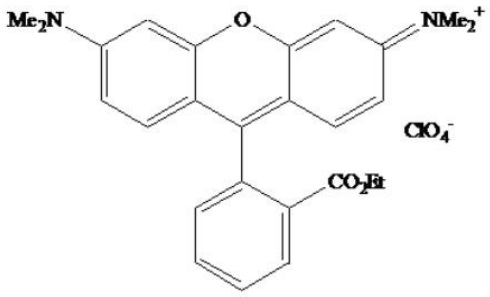
Ex/Em (MeOH): 549/574 nm

CAS No.: 115532-52-0

Molecular Formula: $C_{26}H_{27}ClN_2O_7$

Molecular Weight: 515

Molecular Structure:



Storage

Store at -20 ℃ and protect from light. When stored as directed, product is stable for at least 12 months.

Description

TMRE is a cell-permeant, cationic, red-orange fluorescent dye that is readily sequestered by active mitochondria. TMRE are preferred dyes for quantitative measurements of membrane potentials using the Nernst equation. The dyes do not form aggregates in cell membranes and have minimal interaction with membrane proteins. Thus, the transmembrane distribution of the dyes is directly related to the membrane potential according to the Nernst equation.

Protocol

1. Dyeing liquid preparation

(1) Preparation of stock solution: Dissolve one 25 mg vial of lyophilized dye in 5 mL anhydrous DMSO to prepare a 10 mM TMRE solution. Then pipette 10 µL of the 10 mM TMRM solution into 990 µL anhydrous DMSO to prepare 100 µM TMRE stock solution.

Note: The stock solution can be stored for 6 months at -5 ℃ to -30 ℃.

(2) Preparation of working solution: Dilute the stock solution with medium or PBS to prepare a working solution with a concentration of 20-250 nM.

Note: It is recommended to use TMRE working solution immediately after configuration.

2. Staining Cells

(1) When cells are at appropriate confluence, remove the medium and add TMRE working solution.

(2) Incubate cells for 30 minutes at 37°C.

(3) (Optional) Discard TMRE working solution and wash with PBS or similar buffer to increase sensitivity.

(4) Analyze fluorescence by fluorescence microscopy or flow cytometry.

For fluorescence microscopy or high-content analysis, use the TRITC / RFP filter settings.

For flow cytometry, use 488 nm for excitation and use a 570 ± 10 nm filter.

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Notes

1. There are quenching problems with fluorescent dyes. Please avoid light to slow down the fluorescence quenching.

2. For your safety and health, please wear lab coats and disposable gloves.

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