

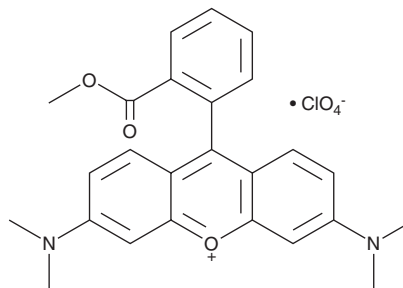
PRODUCT INFORMATION



Tetramethylrhodamine methyl ester (perchlorate)

Item No. 21437

CAS Registry No.: 115532-50-8
Formal Name: 3,6-bis(dimethylamino)-9-[2-(methoxycarbonyl)phenyl]-xanthylium, perchlorate
Synonyms: TMRM, TMR methyl ester
MF: C₂₅H₂₅N₂O₃ • ClO₄
FW: 500.9
Purity: ≥98%
UV/Vis.: λ_{max}: 226, 255, 352, 550 nm
Ex./Em. Max: 515, 555/575 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Tetramethylrhodamine methyl ester (TMRM) (perchlorate) is supplied as a crystalline solid. A stock solution may be made by dissolving the TMRM (perchlorate) in the solvent of choice. TMRM (perchlorate) is soluble in organic solvents such as DMSO and dimethyl formamide, which should be purged with an inert gas. The solubility of TMRM (perchlorate) in these solvents is approximately 30 mg/ml. TMRM (perchlorate) is slightly soluble in ethanol.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of TMRM (perchlorate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. TMRM (perchlorate) is slightly solubility in PBS (pH 7.2). We do not recommend storing the aqueous solution for more than one day.

Description

TMRM (perchlorate) is a non-cytotoxic cell-permeant fluorogenic dye most commonly used to assess mitochondrial function using live cell fluorescence microscopy and flow cytometry.¹⁻³ It has two excitation peaks at 515 and 555 nm and an emission peak in the red-orange range (575 nm). Due to the polarization of the mitochondrial membrane, TMRM is taken up into healthy mitochondria. However, when the membrane is depolarized, as in apoptosis, it is not taken up or is released from the mitochondria. Thus, the strength of the fluorescence signal in mitochondria is used to assess cell viability.

References

1. Farkas, D. L., Wei, M.-d., Febroriello, P. *et al.* Simultaneous imaging of cell and mitochondrial membrane potentials. *Biophys J.* **56(6)**, 1053-1069 (1989).
2. Gandra, P. G., Nogueira, L., and Hogan, M.C. Mitochondrial activation at the onset of contractions in isolated myofibres during successive contractile periods. *J. Physiol.* **590(15)**, 3597-3609 (2012).
3. Michea, L., Combs, C., Andrews, P., *et al.* Mitochondrial dysfunction is an early event in high-NaCl-induced apoptosis of mIMCD3 cells. *Am. J. Physiol. Renal Physiol.* **282(6)**, F981-F990 (2002).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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