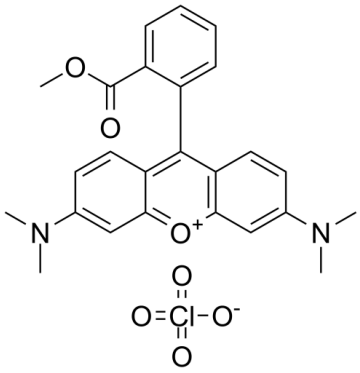
Data Sheet

Product Name:	TMRM Perchlorate
Cat. No.:	CS-0033442
CAS No.:	115532-50-8
Molecular Formula:	C25H25ClN2O7
Molecular Weight:	500.93
Target:	Others
Pathway:	Others
Solubility:	DMSO : 41.67 mg/mL (83.19 mM; Need ultrasonic)



BIOLOGICAL ACTIVITY:

TMRM Perchlorate is a cell-permeant cationic lipophilic red fluorescent dye (λ_{ex}=530 nm, λ_{em}=592 nm). **In Vitro:** TMRM Perchlorate is a fluorescent probe (excitation, 530±21 nm; emission, 592±22 nm). The fluorescence signal in the presence of TMRM Perchlorate shows a slight decrease after the addition of glutamate, indicative of increased polarization of the mitochondrial inner membrane. In the presence of TMRM Perchlorate (2 μM) the coupled respiration with Complex I substrates or upon the addition of Complex II substrate is decreased by 27%[1]. Exposure of hippocampal cultures to low concentrations of TMRM Perchlorate (50 to 500 nM) for 1 to 3 hours results in selective staining of mitochondria in both neurons and the underlying glial cells. Exposure of hippocampal cultures to high concentrations of TMRM Perchlorate (1 to 25 μM) stains mitochondria selectively and quickly, reaching a plateau after 5 to 10 min. Low concentrations of TMRM Perchlorate (50 to 200 nM) do not induce apoptosis, whereas higher concentrations (0.5 and 2.5 μM) enhance apoptosis (K_D = 500 nM)[2].

PROTOCOL (Extracted from published papers and Only for reference)

Cell Assay: Stock solution of TMRM Perchlorate is prepared in 100% DMSO. All working solutions are prepared in physiological saline: 0.1 to 25 μM TMRM Perchlorate.[1]Cultures are exposed to Millipore-filtered solutions (0.22 μm) containing TMRM Perchlorate for 1 hr at 37°C (except the experiment involving different durations of exposure to TMRM Perchlorate). After treatment, solutions are removed and growth media reapplied under sterile conditions, and cultures are post-incubated for 18 hours at 37°C (except for the experiment involving analysis at different time points after exposure). Cells are then stained with 2 mg/mL bisbenzimide for 20 min at room temperature. Coverslips are subsequently washed in saline and imaged using 2P microscopy. Apoptotic cells are identified as brightly fluorescent nuclei under UV excitation indicating DNA fragmentation. Cell survivability is calculated as the percentage of live, unstained cells (±SD) in five microscopic fields per treatment[1].

References:

[1]. Chowdhury SR, et al. Simultaneous evaluation of substrate-dependent oxygen consumption rates and mitochondrial membrane potential by TMRM and safranin in cortical mitochondria. Biosci Rep. 2015 Dec 8;36(1):e00286.

[2]. Monteith A, et al. Imaging of mitochondrial and non-mitochondrial responses in cultured rat hippocampal neurons exposed to micromolar concentrations of TMRM. PLoS One. 2013;8(3):e58059.

CAIndexNames:

Xanthylium, 3,6-bis(dimethylamino)-9-[2-(methoxycarbonyl)phenyl]-, perchlorate (1:1)

SMILES:

O=C(C1=CC=CC=C1C2=C3C=CC(N(C)C)=CC3=[O+]C4=C2C=CC(N(C)C)=C4)OC.O=Cl(=O)([O-])=O

Caution: Product has not been fully validated for medical applications. For research use only.

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