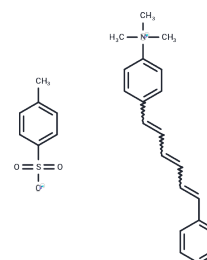


TMA-DPH

Chemical Properties

CAS No. :	115534-33-3
Formula:	C ₂₈ H ₃₁ N ₃ O ₃ S
Molecular Weight:	461.62
Storage:	Keep away from direct sunlight Powder: -20°C for 3 years <small>Actual storage temperature shall be subject to the COA.</small>



Biological Description

Description	TMA-DPH, a hydrophobic fluorescent membrane probe (Ex: 355 nm; Em: 430 nm), is used for studying membrane dynamics and structure.
Targets(IC50)	Others
In vitro	The TMA-DPH fluorescence lifetime remains constant, 6.2 ± 0.2 ns, below the same critical concentration of 2 μ M, but decreases significantly with higher concentrations. This decrease, however, slows down above 5 μ M. The TMA-DPH fluorescence anisotropy displays a similar evolution to the fluorescence lifetime. It is first constant, 0.283 ± 0.003 , again until 2 μ M, and then decreases rapidly to 0.270 ± 0.003 with 5 μ M, continuing to fall, but at a lower rate with higher concentrations [2].
Cell Research	<p>1. Determination of cell membrane fluidity by fluorescence polarization</p> <ol style="list-style-type: none"> 1. Solution preparation: Dissolve TMA-DPH in an appropriate solvent (such as DMSO) to a concentration of 10-20 μM. The concentration can be optimized according to experimental needs. 2. Cell treatment: Add TMA-DPH solution to cultured cells, usually at a concentration of 0.1-2 μM. The treatment time is 15-30 minutes to ensure that the probe can be evenly embedded in the cell membrane. 3. Fluorescence measurement: <ol style="list-style-type: none"> 1) Use a fluorescence polarization (fluorescence polarization) device with an excitation wavelength set to 355 nm and an emission wavelength set to 430 nm to measure the fluorescence polarization value. 2) Record the fluorescence polarization values at different time points or under different conditions to analyze the changes in cell membrane fluidity. 4. Data analysis: <p>Analyze the fluidity of the cell membrane based on the changes in fluorescence polarization values. A higher polarization value indicates that the cell membrane is more solid (lower fluidity), while a lower polarization value indicates that the membrane has higher fluidity.</p> <p>2. Analysis of membrane region fluidity:</p> <ol style="list-style-type: none"> 1. Selection of membrane regions: Specific labeling or sorting of different membrane regions (such as plasma membrane, endoplasmic reticulum membrane, etc.) can be performed. Single-layer membrane or double-layer membrane can be used as the research object.

Cell Research	<p>2. Experimental design: TMA-DPH is added to the cell culture medium, and the fluorescence polarization of specific regions is detected by appropriate techniques (such as confocal microscopy, fluorescence microscopy).</p> <p>3. Analysis of data: Comparing the fluorescence polarization values of different membrane regions can study the differences in fluidity of different membrane regions.</p> <p>The above information is based on published literature. Experimental procedures should be appropriately modified to meet specific research demands.</p>
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Solubility Information

Solubility	DMSO: 55 mg/mL (119.15 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	<p>10% DMSO+40% PEG300+5% Tween-80+45% Saline: 1.67 mg/mL (3.62 mM), Sonication is recommended.</p> <p><i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i></p>

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.1663 mL	10.8314 mL	21.6628 mL
5 mM	0.4333 mL	2.1663 mL	4.3326 mL
10 mM	0.2166 mL	1.0831 mL	2.1663 mL
50 mM	0.0433 mL	0.2166 mL	0.4333 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

- Illinger D, Kuhry JG. The kinetic aspects of intracellular fluorescence labeling with TMA-DPH support the maturation model for endocytosis in L929 cells. *J Cell Biol.* 1994 May;125(4):783-94.
- Zhao X, Lian X, Xie J, et al. Accumulated cholesterol protects tumours from elevated lipid peroxidation in the microenvironment. *Redox Biology.* 2023: 102678.
- Hua L, et al. Vesicle budding caused by lysolipid-induced asymmetry stress. *Biophys J.* 2023 Oct 17;122(20):4011-4022.
- Elafify MS, et al. Reversible transformation of peptide assembly between densified-polysarcosine-driven kinetically and helix-orientation-driven thermodynamically stable morphologies. *Biomater Sci.* 2023 Sep 12;11(18):6280-6286.

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