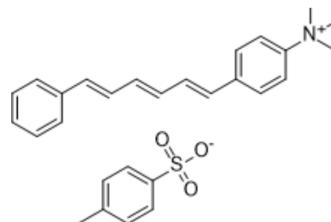


TMA-DPH

Cat. No.:	HY-D0986
CAS No.:	115534-33-3
Molecular Formula:	C ₂₈ H ₃₁ NO ₃ S
Molecular Weight:	461.62
Target:	Fluorescent Dye
Pathway:	Others
Storage:	-20°C, sealed storage, away from moisture and light * The compound is unstable in solutions, freshly prepared is recommended.



SOLVENT & SOLUBILITY

In Vitro	DMSO : 10 mg/mL (21.66 mM; ultrasonic and warming and heat to 60°C)					
	Preparing Stock Solutions	Solvent Concentration	Mass	1 mg	5 mg	10 mg
		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
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 1 mg/mL (2.17 mM); Clear solution					
	2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 1 mg/mL (2.17 mM); Clear solution					
	3. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: 1 mg/mL (2.17 mM); Suspended solution; Need ultrasonic					

BIOLOGICAL ACTIVITY

Description	TMA-DPH is a hydrophobic fluorescent membrane probe (Ex=355 nm; Em=430 nm). TMA-DPH is able to anchor on the cell surface and localize to different regions of the phospholipid bilayer. By analyzing the fluorescence polarization values of TMA-DPH in the plasma membrane and membrane substructures, the fluidity of the cell membrane can be determined ^{[1][2][3]} .
In Vitro	Upon contact with cells, TMA-DPH is immediately integrated into the plasma membrane and subsequently concentrated in lysosomes and highly acidic late endosomes ^[1] . The TMA-DPH fluorescence lifetime, which remained constant at concentrations below 2 μM, was 6.2 ± 0.2 ns. When the concentration is higher than 2 μM, there is a significant decrease with increasing concentration; when the concentration

exceeds 5 μM , the rate of decrease decreases. TMA-DPH fluorescence anisotropy shows a similar evolution to the fluorescence lifetime. First, it remains constant at 0.283 ± 0.003 at concentrations below 2 μM . There is a significant decrease with increasing concentration when the concentration is higher than 2 μM ; then it rapidly decreases to 0.270 ± 0.003 at 5 μM , and the subsequent decrease rate decreases significantly^[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay^[1]

L929 cells in 2 mL DM10F are allowed to adhere on microscope slide flasks. For the observation of plasma membrane labeling, cells are incubated for a short time (10 s) at room temperature with TMA-DPH 2×10^{-6} M in PBS or in DM10F from a 4×10^{-3} M stock solution in dimethylformamide. The unwashed slide is then transferred to the microscope and observed. For the labeling of internalized membrane, the cells are incubated in slide flasks at 37°C, with TMA-DPH 2×10^{-6} M in DM10F for the desired time, and then washed by gently shaking the slide in PBS for a few seconds^[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Stem Cell Res Ther. 2024 Jan 8;15(1):12.
- Ecotoxicol Environ Saf. 2022 Dec 9;249:114375.
- Ecotoxicol Environ Saf. 2021 Dec 20;227:112885.
- Biotechnol Biofuels. 2019 Mar 19;12:59.
- Food Funct. 2020 Jan 29;11(1):700-710.

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REFERENCES

- [1]. Benedetti A, et al. Plasma membrane fluidity in isolated rat hepatocytes: comparative study using DPH and TMA-DPH as fluorescent probes. J Gastroenterol Hepatol. 1989 May-Jun;4(3):221-7.
- [2]. Illinger D, et al. 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.
- [3]. Illinger D, et al. A comparison of the fluorescence properties of TMA-DPH as a probe for plasma membrane and for endocytic membrane. Biochim Biophys Acta. 1995 Oct 4;1239(1):58-66.

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

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