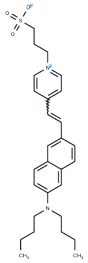
Data Sheet (Cat.No.T82567)

TargetMol

Di-4-ANEPPS

Chemical Properties



CAS No. : 90134-00-2

Formula: C28H36N2O3S

Molecular Weight: 480.66

Storage: Keep away from direct sunlight
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Di-4-ANEPPS is a fast-response, electrochromic membrane potential fluorescent probe based on a naphthylstyrylpyridinium structure. Its response mechanism involves membrane potential changes causing intramolecular charge transfer, leading to a blue shift in the excitation spectrum. It enables real-time detection of millisecond-scale transient membrane potential changes in excitable cells (e.g., neurons and cardiomyocytes) through ratiometric imaging. Di-4-ANEPPS is non-fluorescent before incorporating into lipid membranes; after incorporation, excitation/emission peaks are approximately in the 465-482 nm/635-686 nm range. Besides being widely used in cardiac electrophysiology and drug cardiac toxicity assessment, it is also a target molecule in studies of singlet oxygen-mediated photooxidative damage at membrane interfaces. Note that Di-4-ANEPPS itself may cause non-reversible interference with cardiac conduction parameters (e.g., heart rate, conduction velocity) at high concentrations or under prolonged illumination and can inhibit sodium current.
Targets(IC50)	Others
In vitro	Treatment of isolated rabbit hearts with Di-4-ANEPPS (2 μM; 20 min) alters cardiac electrical activity, resulting in significant slowing of heart rate and ventricular conduction, as well as reduced ischemia detection capacity [1]. In experiments with human induced pluripotent stem cell-derived cardiomyocytes (hiPSC-CM), Di-4-ANEPPS (6 μM; 1 min) can be used to assess the electrophysiological properties of hiPSC-CM and to evaluate the effects of drugs on their electrophysiology [2].

Solubility Information

Solubility	DMSO: 10 mg/mL (20.8 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.0805 mL	10.4024 mL	20.8047 mL
5 mM	0.4161 mL	2.0805 mL	4.1609 mL
10 mM	0.208 mL	1.0402 mL	2.0805 mL
50 mM	0.0416 mL	0.208 mL	0.4161 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

Marina Ronzhina, et al. Di-4-ANEPPS Modulates Electrical Activity and Progress of Myocardial Ischemia in Rabbit Isolated Heart. Front Physiol. 2021 Jun 10;12:667065.
Hortigon-Vinagre MP, et al. The Use of Ratiometric Fluorescence Measurements of the Voltage Sensitive Dye Di-4-ANEPPS to Examine Action Potential Characteristics and Drug Effects on Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes. Toxicol Sci. 2016 Dec;154(2):320-331.
Hortigon-Vinagre MP, et al. The Use of Voltage Sensitive Dye di-4-ANEPPS and Video-Based Contractility Measurements to Assess Drug Effects on Excitation-Contraction Coupling in Human-Induced Pluripotent Stem Cell-Derived Cardiomyocytes. J Cardiovasc Pharmacol. 2021 Mar 1;77(3):280-290.