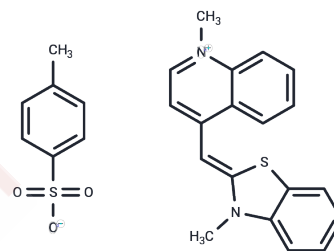


Thiazole Orange

Chemical Properties

CAS No. :	107091-89-4
Formula:	C ₂₆ H ₂₄ N ₂ O ₃ S ₂
Molecular Weight:	476.61
Storage:	Keep away from direct sunlight Powder: -20°C for 3 years In solvent: -80°C for 1 year <small>Actual storage temperature shall be subject to the COA.</small>



Biological Description

Description	Thiazole Orange is a dye that can be used for reticulocyte analysis.
Targets(IC50)	Others
Cell Research	<p>Instructions</p> <p>I. Solution preparation</p> <ol style="list-style-type: none"> 1. Stock solution: Dissolve Thiazole Orange in DMSO or ethanol to prepare a stock solution with a concentration of 13 mg/ml. Since the dye is light-sensitive, it needs to be handled and stored in the dark. 2. Working solution: Dilute the stock solution to the working concentration according to the experimental requirements, usually 1 mg/ml. Use an appropriate buffer (such as PBS) for dilution. <p>II. Operation steps</p> <ol style="list-style-type: none"> 1. Coupling with oligonucleotides: <ol style="list-style-type: none"> (1) Thiazole Orange can be covalently coupled to modified oligonucleotides or linkers through amino-reactive functional groups (such as NHS esters or isothiocyanates). (2) After coupling, purify the labeled oligonucleotides by high-performance liquid chromatography (HPLC) or gel electrophoresis. (3) Verify the coupling efficiency by absorption and fluorescence measurements. 2. Reticulocyte analysis: <ol style="list-style-type: none"> (1) Prepare a red blood cell suspension (prepared in PBS or isotonic buffer). (2) Add Thiazole Orange at a working concentration (usually 1 mg/ml) and incubate at 37°C for 60 minutes to allow it to bind to RNA in reticulocytes. (3) Analyze the stained cells using a flow cytometer or fluorescence microscope, selecting appropriate excitation wavelengths (~510 nm) and emission wavelengths (~530 nm). 3. Application of fluorescent hybridization probes: <ol style="list-style-type: none"> (1) Use labeled oligonucleotide probes to detect specific nucleic acid sequences in hybridization experiments. (2) Optimize hybridization conditions (such as temperature and buffer composition) to ensure specific binding of the probe to the target sequence. (3) Measure the fluorescent signal using a fluorometer or fluorescence imaging system. <p>Notes:</p>

Cell Research	<p>1. Photosensitivity: Thiazole Orange is light-sensitive and should be avoided from prolonged exposure to strong light when used.</p> <p>2. Storage conditions: The stock solution should be stored in a sealed container at -20°C to reduce moisture exposure and prevent degradation. Avoid repeated freezing and thawing.</p> <p>3. Compatibility: Thiazole Orange binds strongly to nucleic acids. Avoid using solutions containing detergents or high salt concentrations, which may reduce its interaction with nucleic acids.</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	<p>H₂O: < 0.1 mg/mL (insoluble), DMSO: 12.25 mg/mL (25.7 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)</p>
In vivo Formulation	<p>10% DMSO+40% PEG300+5% Tween-80+45% Saline: 1 mg/mL (2.1 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	2.0982 mL	10.4908 mL	20.9815 mL
5 mM	0.4196 mL	2.0982 mL	4.1963 mL
10 mM	0.2098 mL	1.0491 mL	2.0982 mL
50 mM	0.042 mL	0.2098 mL	0.4196 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

- Homer A, et al. Light harvesting FIT DNA hybridization probes for brightness-enhanced RNA detection. *Chem Sci*. 2024 Dec 2;16(2):846-853.
- McFarland AW Jr, et al. Nucleic Acid Specificity, Cellular Localization and Reduced Toxicities of Thiazole Orange-Neomycin Conjugates. *ChemistryOpen*. 2024 Dec 27:e202400189.
- Parveen S, et al. Rationally Designed G-Quadruplex Selective "Turn-On" NIR Fluorescent Probe with Large Stokes Shift for Nucleic Acid Research-Based Applications. *ACS Appl Bio Mater*. 2024 Nov 18;7(11):7233-7243.

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