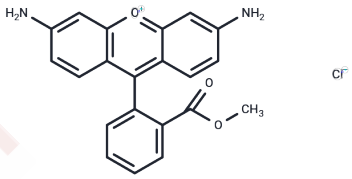
Data Sheet (Cat.No.T16743)

TargetMol

Rhodamine 123

Chemical Properties



CAS No. : 62669-70-9

Formula: C21H17ClN2O3

Molecular Weight: 380.83

Storage: Keep away from direct sunlight,Keep away from moisture,Store at low temperature
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	Rhodamine 123 is a fluorescent dye (λex=503 nm, λem=527 nm).
Targets(IC50)	Others
In vitro	The intensity of R123 fluorescence has a peak at a concentration of 50 μM and decreases to zero at higher concentrations because of self-quenching[1].
Cell Research	Instructions I. Solution preparation 1. Preparation of mother solution: Dissolve Rhodamine 123 in anhydrous DMSO or ethanol to prepare a 1-5 mM stock solution. Note: Avoid vigorous stirring or shaking during dissolution to prevent fluorescence quenching. 2. Working solution preparation: Dilute the stock solution with appropriate culture medium to the required working concentration, usually 1-2 μM. II. Operation steps 1. Cell preparation: 1) Culture cells on a slide, the cell density should be 5×10^4 to 5×10^5 cells/mL. 2) Wash cells with PBS or Hank's solution to remove residual culture medium. 2. Staining: Add the working concentration solution to the cells and incubate at 37°C in the dark for 30 minutes to 1 hour. 3. Washing: 1) Remove the dye solution and wash the cells with culture medium or PBS to remove unbound dye. 2) If cells need to be fixed, add 10% formalin buffer and incubate for 15-20 minutes, then wash with PBS. 4. Observation: Use a fluorescence microscope with a fluorescein filter to observe cells. Rhodamine 123 is excited at a wavelength of about 507 nm and emits green fluorescence at 529 nm. Precautions: 1) Wear gloves during operation to avoid contact between skin or mucous membranes and reagents.

Cell Research	2) Avoid light during incubation and storage to prevent fluorescence quenching. 3) After staining, fluorescence detection analysis should be performed immediately. The above information is based on published literature. Experimental procedures should be appropriately modified to meet specific research demands.

Solubility Information

Solubility	DMSO: 30 mg/mL (78.78 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.6258 mL	13.1292 mL	26.2584 mL
5 mM	0.5252 mL	2.6258 mL	5.2517 mL
10 mM	0.2626 mL	1.3129 mL	2.6258 mL
50 mM	0.0525 mL	0.2626 mL	0.5252 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

Pan F, Lu Y, Yang H. Panax notoginseng saponins treat steroid-resistant lupus nephritis by inhibiting macrophage-derived exosome-induced injury in glomerular endothelial cells via the mitochondrial Autophagy-NLRP3 pathway. J Ethnopharmacol. 2025 Feb 11;343:119475.

Hou Z, Lin S, Du T, et al.S-72, a Novel Orally Available Tubulin Inhibitor, Overcomes Paclitaxel Resistance via Inactivation of the STING Pathway in Breast Cancer.Pharmaceuticals.2023, 16(5): 749.

Deciphering Phase-Separated Mitochondrial RNA Granules under Stress Conditions with the Mitoribosome-Targeting Small Molecule

Huang M,et al. Mitochondrial inner membrane electrophysiology assessed by rhodamine-123 transport and fluorescence. Ann Biomed Eng. 2007 Jul;35(7):1276-85.

Huang M,et al. Mitochondrial inner membrane electrophysiology assessed by rhodamine-123 transport and fluorescence. Ann Biomed Eng. 2007 Jul;35(7):1276-85.