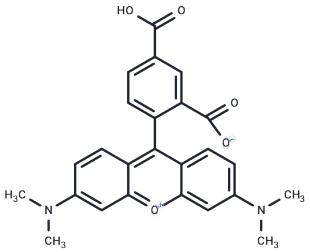
Data Sheet (Cat.No.T18891)

TargetMol

5-TAMRA

Chemical Properties



CAS No. : 91809-66-4

Formula: C25H22N2O5

Molecular Weight: 430.45

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	5-TAMRA (5-Carboxytetramethylrhodamine) (5-Carboxytetramethylrhodamine) yields bright, pH-insensitive orange-red fluorescence (approximate excitation/emission maxima ~546/579) with good photostability.
Targets(IC50)	Others
In vitro	I. Biomolecule labeling 1. Material preparation: 1) 5-TAMRA solution: Prepare a 1-10 mM solution and dissolve it in anhydrous DMF (N, N-dimethylformamide) or DMSO. 2) Target molecules (such as antibodies, nucleic acid probes, etc.). 3) Coupling buffer: Commonly used are PBS buffer or other appropriate biochemical buffers (pH 7.0-8.5). 4) Coupling reagents: such as EDC (1-ethyl-3-(3-dimethylaminopropyl)carbodiimide) or NHS (N-hydroxysuccinimide). 2. Steps: 1) Coupling reaction: Add 5-TAMRA solution and target molecules (such as antibodies, nucleic acid probes, etc.) to the coupling buffer at an appropriate molar ratio (usually 1:1 to 1:10), add coupling reagents (such as EDC or NHS) to activate the carboxyl groups on the molecules and promote the binding of 5-TAMRA to the amino groups on the target molecules. 2) Reaction conditions: React the reaction system at room temperature for 1-2 hours, or adjust the time and temperature according to the specific coupling reaction requirements. 3) Washing: Remove unreacted dyes and coupling reagents by dialysis, gel filtration or other appropriate methods. 4) Detection and analysis: Determine the fluorescence intensity of the labeled molecules by fluorescence spectrophotometer or fluorescence microscope. Usually use an excitation wavelength of 546 nm and an emission wavelength of 579 nm for detection. II. Real-time PCR labeling 1. Material preparation: 1) 5-TAMRA fluorescent probe (usually used as a reporter dye) is used in conjunction with FAM, VIC or other targeting dyes. 2) PCR primers and templates. 2. Steps:

In vitro	1) Design probes: Match the 5-TAMRA-labeled probes to specific DNA sequences, usually selecting sequences with high specificity. 2) PCR reaction: Use the 5-TAMRA-labeled probes in real-time PCR experiments to detect changes in the fluorescent signal during PCR amplification. The above information is based on published literature. Experimental procedures should be appropriately modified to meet specific research demands.

Solubility Information

Solubility	DMSO: 60 mg/mL (139.39 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.3232 mL	11.6158 mL	23.2315 mL
5 mM	0.4646 mL	2.3232 mL	4.6463 mL
10 mM	0.2323 mL	1.1616 mL	2.3232 mL
50 mM	0.0465 mL	0.2323 mL	0.4646 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

Luo Y,et al. A hybrid strategy to enhance small-sized upconversion nanocrystals. Biosens Bioelectron. 2025 Mar 1; 271:117003.

He S, et al. Drug Release Nanoparticle System Design: Data Set Compilation and Machine Learning Modeling. ACS Appl Mater Interfaces. 2025 Jan 12.

Archipowa N, et al. Characterization of Fluorescent Dyes Frequently Used for Bioimaging: Photophysics and Photocatalytical Reactions with Proteins. J Phys Chem B. 2023 Nov 9;127(44):9532-9542.