Dihydrorhodamine 123

Cat. No.: AFG-MCH-00004

CAS No.: 109244-58-8

Molecular Formula: $C_{21}H_{18}N_2O_3$

Molecular Weight: 346.38

Emission (Em): 536

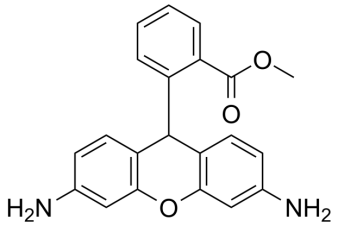
Excitation(Ex): 515

Target: Fluorescent Dye

Pathway: Others

Storage: -20°C, protect from light

* The compound is unstable in solutions, freshly prepared is recommended.



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (288.70 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.8870 mL	14.4350 mL	28.8700 mL
	5 mM	0.5774 mL	2.8870 mL	5.7740 mL
	10 mM	0.2887 mL	1.4435 mL	2.8870 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (7.22 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Dihydrorhodamine 123 (DHR 123) is a non-fluorescent reactive oxygen species (ROS) indicator. Dihydrorhodamine 123 is oxidized to fluorescent Rhodamine 123 (HY-D0816) within cells in the presence of reactive oxygen species and it localizes in mitochondria.

In Vitro

In the presence of 10 μM Dihydrorhodamine 123 (DHR 123) the stimulation of the neutrophil NADPH oxidase by the addition of 50 nM phorbol 12-myristate 13-acetat (PMA) resultes in an increase in the rate of rhodamine generation. The fluorescent intensity of the cells, in the presence of 10 μM Dihydrorhodamine 123, increases with time following the addition of 50 nM PMA. In the presence of 10 μM Dihydrorhodamine 123, induced HL60 cells show a sustained increase in fluorescence following the addition of 50 nM PMA[1].

AffiGen has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]

The HL60 cells are incubated at 6×10^6 cells/mL in Krebs-Ringer buffer at 37°C containing 10 μM Dihydrorhodamine 123 (DHR). The generation of O_2^- is initiated by the addition of 50 nM phorbol 12-myristate 13-acetat (PMA) and the progress of the generation of rhodamine 123 is monitored in 50-μL aliquots (3×10^5 cells) diluted tenfold before analysis. The uninduced HL60 cells are loaded with 5 μM carboxy SNARF-1 AM acetate (SNARF-AM) in the Na^+ medium for 10 min at 37°C and washed by centrifugation and resuspension to remove unhydrolysed SNARF ester[1].

AffiGen has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Adv Mater. 2025 Jan 26:e2410992.
- Adv Funct Mater. 2025 Jan 16.
- ACS Nano. 2025 Jan 7.
- Small. 2024 Jan 14:e2306916.
- Adv Healthc Mater. 2024 Sep 3:e2402079.

REFERENCES

[1]. Lydia M. Henderson et al. Dihydrorhodamine 123: a fluorescent probe for superoxide generation? Eur.J.Biochem. 217, 973-980.

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