FT-AM352A

Rhodamine 123 dyes

Rhodamine 123 is a membrane-permeable cationic dye to probe the electrochemical gradient in mitochondria, in flow cytometry to detect the activity of P-glycoprotein efflux, and used as a compound for P-GP mediating transport.

Dihydrorhodmaine 123 is a fluorescent probe commonly used for determination of peroxynitrite & other ROSs

Product Information

Name :	**Rhodamine 123**
Catalog Number :	FP-473729, 25 mg FP-R1380A, 25 mg FluoProbes® Pure Grade (>98,0%) FP-47372A, 50 mg
Structure :	$C_{21}H_{17}ClN_2O_3$
Molecular Weight :	MW= 380.83
Solubility:	Soluble in ethanol (20 mg/ml), DMSO, methanol, and water (partly miscible)
Absorption / Emission :	$\lambda_{exc}\backslash\lambda_{em}$ (MeOH) = 505 / 534 nm
EC (M^{-1} cm^{-1}) **:**	97 000

Name :	**Dihydrorhodamine 123**
Catalog Number :	FP-83775A, 10 mg FluoProbes® Pure Grade (>99,0%) FP-R6805A, 1 ml 5mM stabilized solution in DMSO FP-IT397A, 10 x 1 mg Air-Free packaging
Structure :	$C_{21}H_{18}N_2O_3$
Molecular Weight :	MW= 346.39
Solubility:	Soluble in ethanol (~10 mg/ml), DMSO (~10 mg/ml), DMF (~10 mg/ml), PBS (pH7.2) (<20 µg/ml), chloroform, and methanol. Insoluble in water.
Absorption / Emission :	$\lambda_{exc}\backslash\lambda_{em}$ (MeOH) = 289 / none $\lambda_{exc}\backslash\lambda_{em}$ (oxidized) = 505 / 534 nm
EC (M^{-1} cm^{-1}) **:**	7 100 (MeOH)

Name :	**Dihydrorhodamine 123 Dihydrochloride salt**
Catalog Number :	FP-AM352A, 10 mg
Structure :	$C_{21}H_{20}Cl_2N_2O_3$
Molecular Weight :	MW= 419
Solubility:	In DMF
Absorption / Emission :	$\lambda_{exc}\backslash\lambda_{em}$ (MeOH) = 289 / none $\lambda_{exc}\backslash\lambda_{em}$ (oxidized) = 505 / 534 nm
EC (M^{-1} cm^{-1}) **:**	7 100 (MeOH)

Storage: Rhodamine 123 should be stored at +4°C (L) and protect from light and moisture.
Dihydrorhodamine 123 and the salt form should be stored at –20°C under nitrogen or argon and protect from light and moisture

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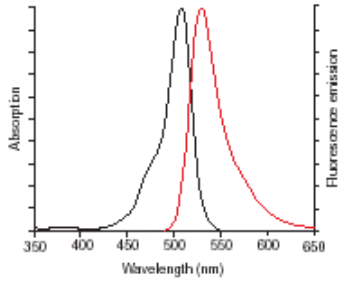
Introduction

Rhodamine 123 is a commonly used probe for Endoplasmic Reticulum and Golgi apparatus, but also Mitochondria. Rhodamine 123 accumulates within a few minutes in mitochondria without cytotoxic effects. It does not stain ER unlike most potential indicators, but is merely released by washes of many cells.
Rhodamine 123 is a cell-permeant green fluorescent mitochondrial dye that stains mitochondria in living cells in a membrane potential-dependent fashion. It is widely used in flow cytometry studies involving mitochondrial membrane potential. It is used in other many applications including bacterial viability and vitality assays and sorting respiratory-deficient yeast cells using flow cytometry.
It can also be used to measure the efflux activity of P-glycoprotein in drug-resistant phenotypes in cancer cells

The reduced form is generally preferred, because it stains mitochondria of viable cells.
Dihydrorhodamine 123 is the reduced form of rhodamine 123 , which is a commonly used fluorescent mitochondrial dye. Dihydrorhodamine 123 itself is nonfluorescent, but it readily enters most of the cells and is oxidized by oxidative species or by cellular redox systems to the fluorescent rhodamine 123 that accumulates in mitochondrial membranes. Dihydrorhodamine 123 is useful for detecting reactive oxygen species including superoxide (in the presence of peroxidase or cytochrome c) and peroxynitrite.

Dihydrorhodamine 123 dihydrochloride is the HCl salt form of dihydrorhodamine 123 (FP-83775A) and is functionally equivalent to the latter. However, Dihydrorhodamine 123 dihydrochloride is more stable to air oxidation than dihydrorhodamine 123. Thus, Dihydrorhodamine 123 dihydrochloride can be stored longer than dihydrorhodamine 123.



Absorption and emission spectra of rhodamine 123 in MeOH

Directions for use

Handling and Storage

Generally, prepare a stock solution at 10 mM, aliquote and stock at –20°C.

Guidelines for use:

Cells	Source		Concentration	Temperature	Time	Notes
Leucocytes	J. Heine 1996	30 µl of 5.10^5 c/ml	DhRh123 15µl (10^4 mol)	+37°C	5 min	Flow Cytometer
Neutrophils	Fossati 2003	1 x 10^6 c/ml	DhRh123 2 µM	+37°C	20 min	Flow Cytometer or confocal microscopy
HUVEC Human umbilical vein endothelial cell	Longoni 2001		DhRh 123 10 µM	+37°C	30 min	Microscopy
HT-29 cells	Lechner 2002	5 x 10^6 c/ml	DhRh 123 1 µM	+37°C	15 min	Flow cytometer
Tobacco cells			Rh123 2µg/ml	+25°C	30 min	Fluorescence spectrophotometer and microscope
Sperm cells	Auger 1993		Rh123 10 µg/ml	+21°C	10 min	Flow cytometer

Other protocol may found in the literature.

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Related products

- TMRE, FP-41391A
- TMRM, FP-21089A
- JC-1, FP-52314A

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Ordering information

Catalog size quantities and prices may be found at http://www.fluoprobes.com
Please inquire for higher quantities (availability, shipment conditions).

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