

Product Data Sheet

Product Name: Rhodamine B (Basic Violet 10)

Cat. No.: GC30172

Chemical Properties

Cas. No. 81-88-9

SMILES CCN(C1=CC2=[O+]C3=C(C=CC(N(CC)CC)=C3)C(C4=CC=CC=C4C(O)=O)=C2C=C1)CC.[Cl-]

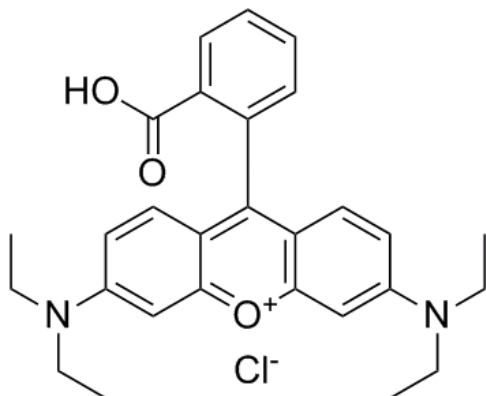
Formula $C_{28}H_{31}ClN_2O_3$ M.Wt 479.01

Solubility DMSO : 6 mg/mL (12.53 mM) Storage Store at 4°C, protect from light, stored under nitrogen

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure



Protocol

This plan only provides a guide, please modify it to meet your specific needs.

1. Solution preparation

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

(1) Stock solution: Dissolve Rhodamine B in DMSO to prepare a stock solution with a concentration of 10mM.

Note: It is recommended that unused stock solution be stored at -20°C or -80°C in the dark after aliquoting to avoid repeated freezing and thawing.

(2) Working solution: Dilute the stock solution with experimental buffer to the required working concentration.

Note: Please adjust the optimal working concentration according to the actual situation or refer to the literature to set the gradient concentration by yourself. The working solution must be prepared and used immediately.

2. Cell suspension staining (taking 6-well plate as an example)

(1) Suspended cells are centrifuged at 1000g for 3-5min. Discard the supernatant and wash twice with PBS, each time for 5min.

(2) Adherent cells are washed twice with PBS, trypsin is added to digest the cells, and after digestion, they are centrifuged at 1000g for 3-5min.

(3) Add 1mL Rhodamine B working solution to resuspend the cells and incubate at room temperature in the dark for 5-30min. The optimal culture time varies for different cells.

(4) After incubation, centrifuge at 1000g for 5min, remove the supernatant, and wash with PBS 2-3 times, 5min each time.

(5) Resuspend the cells in serum-free cell culture medium or PBS and observe by fluorescence microscopy or flow cytometry.

3. Cell adhesion staining

(1) Culture adherent cells on sterile coverslips.

(2) Remove the coverslip from the culture medium, aspirate the excess culture medium, and place the coverslip in a humid environment.

(3) Add 100μL Rhodamine B working solution from one corner of the coverslip, gently shake to evenly cover all cells with the dye, and incubate at room temperature in the dark for 30-60min.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

(4) Aspirate the dye working solution and wash the coverslip 2-3 times with culture medium, 5min each time. Observe by fluorescence microscopy.

4. Labeling of Antarctic Candida lipase B (CALB) with Rhodamine B Steps ^[1] (from the literature, for reference only)

(1) Prepare 5mg/mL Rhodamine B solution in DMSO and take 0.4mL.

(2) Prepare 5mg/mL CALB solution in Na₂CO₃-NaHCO₃ buffer (50mM, pH 9) and take 4mL.

(3) Add 0.4mL of Rhodamine B solution to 4mL of CALB solution and stir the mixture at 4°C for 12h.

(4) Terminate the reaction with 50mM NH₄Cl.

(5) Dialyze the reaction mixture against PBS (50mM, pH 7) at 4°C for 48h to remove unreacted dye.

References:

[1] Xu W, Fu Z, Chen G, et al. Graphene oxide enabled long-term enzymatic transesterification in an anhydrous gas flux[J]. Nature communications, 2019, 10(1): 2684.

Background

Rhodamine B (Basic Violet 10) is a fluorescent dye used as a tracer dye in water to determine the rate and direction of flow and transport, with excitation/emission maxima at 568/583nm^[1, 2].

Rhodamine B is commonly used in fluorescence microscopy, flow cytometry, fluorescence correlation spectroscopy and ELISA in biotechnology experiments. It can be used to label organelles or cell membranes, and can also be coupled to antibodies to detect the presence and quantity of specific proteins^[3, 4]. Rhodamine B is commonly used in industry for dyeing textiles, paper, soap, leather, and pharmaceuticals^[5].

References:

[1] Field M S, Wilhelm R G, Quinlan J F, et al. An assessment of the potential adverse properties of fluorescent tracer dyes used for groundwater tracing[J]. Environmental Monitoring and Assessment, 1995, 38: 75-96.

[2] Stobiecka M, Hepel M. Multimodal coupling of optical transitions and plasmonic oscillations in

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

rhodamine B modified gold nanoparticles[J]. Physical Chemistry Chemical Physics, 2011, 13(3): 1131-1139.

[3] Brulikova L, Krupkova S, Labora M, et al. Synthesis and study of novel pH-independent fluorescent mitochondrial labels based on Rhodamine B[J]. RSC advances, 2016, 6(28): 23242-23251.

[4] Ullman E F, Schwarzberg M, Rubenstein K E. Fluorescent excitation transfer immunoassay. A general method for determination of antigens[J]. Journal of Biological Chemistry, 1976, 251(14): 4172-4178.

[5] Farhan A M, Zaghair A M, Abdullah H I. Adsorption Study of Rhodamine–B Dye on Plant (Citrus Leaves)[J]. Baghdad Science Journal, 2022, 19(4): 0838-0838.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA