Calcein Blue

Cat. No.: HY-101887

CAS No.: 54375-47-2

Molecular Formula: $C_{15}H_{15}NO_7$

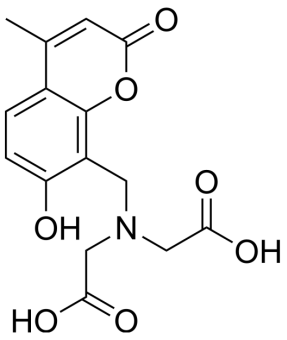
Molecular Weight: 321.28

Target: Fluorescent Dye

Pathway: Others

Storage: 4°C, protect from light

* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 1 mg/mL (3.11 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.1125 mL	15.5627 mL	31.1255 mL
5 mM	---	---	---
10 mM	---	---	---

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

BIOLOGICAL ACTIVITY

Description

Calcein Blue, a membrane-impermeant fluorescent dye, is a coumarin derivative that contains an iminodiacetic acid structure. Calcein Blue is also a metallofluorochromic indicator[1][2][3].

In Vitro

The fluorescence of Calcein Blue (CB) is quenched by the Fe^{2+} ion in the Calcein Blue-Fe^{2+} complex. When dopamine is added to a solution of the Calcein Blue-Fe^{2+} complex, a dopamine-Fe^{2+} complex is formed as the result of a ligand exchange reaction between Calcein Blue and dopamine which permits the fluorescence from Calcein Blue to be recovered. The fluorescence intensity at the wavelength of 440 nm (at the excitation wavelength of 340 nm) is found to be proportional to the concentration of the dopamine added to the Calcein Blue-Fe^{2+} complex solution, which permits dopamine to be quantitatively determined. The Calcein Blue-Fe^{2+} complex shows a high selectivity for dopamine among the catecholamines and related compounds examined[1].

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

PROTOCOL

Cell Assay	The recommended final working concentrations is usually between 1 and 10 μM to minimize potential artifacts. Generally, 15 minutes to 1 hour is sufficient for cellular uptake and processing of the dyes. A stock concentration of 5 mM 4-methylumbelliferone-8- methyliminodiacetic acid, commonly known as calcein blue is prepared in 0.1 M potassium hydroxide, and the pH is neutralized using 0.1 N hydrochloric acid. The calcein blue stock prepared is diluted to 200 μM (working stock) in DPBS and stored for further use. A concentration of 10 μM calcein blue is prepared from the working stock by diluting in DPBS. From this, 200 μL is added to a 96-well plate and the excitation/emission (Ex./Em.) maximum is determined using the micro-plate reader[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Microbiol. 2023 May 29.

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REFERENCES

[1]. Sankaranarayanan R, et al. A new fluorimetric method for the detection and quantification of siderophores using Calcein Blue, with potential as a bacterial detection tool. Appl Microbiol Biotechnol. 2015 Mar;99(5):2339-49.

[2]. Seto D, et al. A simple and selective fluorometric assay for dopamine using a calcein blue-Fe2+ complex fluorophore. Talanta. 2012 May 30;94:36-43.

[3]. G M Huitink, et al. Methyl calcein blue and other analogues of calcein blue. Talanta. 1974 Nov;21(11):1193-202.

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