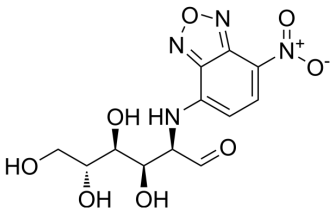
2-NBDG

Cat. No.:	HY-116215
CAS No.:	186689-07-6
Molecular Formula:	$C_{12}H_{14}N_4O_8$
Molecular Weight:	342.26
Target:	Fluorescent Dye
Pathway:	Others
Storage:	-20°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 5 mg/mL (14.61 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.9218 mL	14.6088 mL	29.2176 mL
5 mM	0.5844 mL	2.9218 mL	5.8435 mL
10 mM	0.2922 mL	1.4609 mL	2.9218 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 3.33 mg/mL (9.73 mM); Clear solution; Need ultrasonic and warming and heat to 60°C

BIOLOGICAL ACTIVITY

Description

2-NBDG is a fluorescently-labeled deoxyglucose analog that is used primarily to directly monitor glucose uptake by living cells and tissues. It is also used as a topical contrast reagent for the detection of neoplasia. 2-NBDG can be used in real-time confocal, high-resolution, or wide-field fluorescence microscopy as well as in flow cytometry. The probe can be excited by the Argon laser at 488 nm to give the environment-sensitive fluorescence. It has lower photostability than the rhodamine-based fluorescent probes.

In Vitro

Preparation of 2-NBDG working solution
1.1 Preparation of the stock solution
Dissolve 1 mg of 2-NBDG in 2.92 mL of DDH_2O to obtain 1 mM of 2-NBDG.
Note: It is recommended to store the stock solution at -20 ⊠ or -80 ⊠ away from light and avoid repetitive freeze-thaw cycles.

1.2 Preparation of 2-NBDG working solution.
Dilute the stock solution in serum-free cell culture medium or PBS to obtain 10-200 μM of 2-NBDG working solution.
Note: Please adjust the concentration of 2-NBDG working solution according to the actual situation.

Cell staining
2.1 For suspension cells: Centrifuge at 1,000 g at 4□ for 3-5 minutes and then discard the supernatant. Wash twice with PBS, 5 minutes each time.
For adherent cells: Discard the cell culture medium, and add trypsin to dissociate cells to make a single-cell suspension. Centrifuge at 1000 g at 4□ for 3-5 minutes and then discard the supernatant. Wash twice with PBS, 5 minutes each time.
2.2 Add 1 mL of 2-NBDG working solution, and then incubate at room temperature for 5-60 minutes.
2.3 Centrifuge at 400 g at 4□ for 3-4 minutes and then discard the supernatant.
2.4 Wash twice with PBS, 5 minutes each time.
2.5 Resuspend cells with serum-free cell culture medium or PBS. .If test viability, recorded the optical density (O.D.) at 540/570 nm. Cell viability was calculated as a control ratio and plotted against the logarithmic concentration of the drug to calculate IC_{50}.
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Research (Wash D C). 2024 Feb 21.
- J Transl Med. 2023 Aug 26;21(1):574.
- Oncogenesis. 2022 Aug 8;11(1):45.
- Food Funct. 2021 Mar 21;12(6):2726-2740.
- J Cell Physiol. 2021 Aug;236(8):5818-5831.

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REFERENCES

[1]. Yamada K, et al. A real-time method of imaging glucose uptake in single, living mammalian cells. Nat Protoc. 2007;2(3):753-62.

[2]. Zou C, et al. 2-NBDG as a fluorescent indicator for direct glucose uptake measurement. J Biochem Biophys Methods. 2005 Sep 30;64(3):207-15.

[3]. Zou C, et al. 2-NBDG as a fluorescent indicator for direct glucose uptake measurement. J Biochem Biophys Methods. 2005 Sep 30;64(3):207-15.

[4]. Katsuya Yamada, et al. A real-time method of imaging glucose uptake in single, living mammalian cells. Nat Protoc. 2007;2(3):753-62.

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

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA