Data Sheet (Cat.No.T72172)

TargetMol

4,6-O-Ethylidene-α-D-glucose

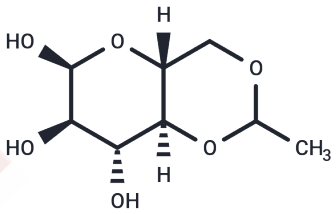
Chemical Properties

CAS No. : 13224-99-2

Formula: C8H14O6

Molecular Weight: 206.19

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.



Biological Description

Description	4,6-O-Ethylidene-α-D-glucose is a glucose derivative that competitively inhibits the extracellular binding site of glucose transporter 1 (GLUT1), with a Ki of 12 mM for the transport of wild-type 2-deoxy-D-glucose.
Targets(IC50)	Endogenous Metabolite
In vitro	Methods: In vitro inhibition of 4,6-O-ethylidene-α-D-glucose on the transport activity of Plasmodium hexose transporter PfHT1 (wild-type and Gln282-Leu mutant) was determined. Its effects on glucose efflux in human erythrocytes, transmembrane transport mechanism, and related physicochemical properties were also investigated. Results: 1.4,6-O-Ethylidene-α-D-glucose showed extremely low affinity to Plasmodium hexose transporter PfHT1, with K > 50 mM. It inhibited wild-type transport with K ≈ 12 mM, while the K increased to over 120 mM in the Gln282-Leu mutant [1]. 2.4,6-O-Ethylidene-α-D-glucose competitively inhibited glucose efflux, but its entry into human erythrocytes was not affected by glucose in the medium. It did not enhance the potentiating effect of medium glucose on FDNB inhibition; instead, it exerted a slight protective effect. 3.4,6-O-Ethylidene-α-D-glucose entered human erythrocytes via simple diffusion, supported by similar penetration rates in guinea pig erythrocytes, induction of osmotic hemolysis in isotonic solutions independent of Cu^{2+}, and a high ether/water partition coefficient [3].

Solubility Information

Solubility	DMSO: 80 mg/mL (387.99 mM),Sonication is recommended. H2O: 100 mg/mL (484.99 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.8499 mL	24.2495 mL	48.499 mL
5 mM	0.970 mL	4.8499 mL	9.6998 mL
10 mM	0.485 mL	2.4249 mL	4.8499 mL
50 mM	0.097 mL	0.485 mL	0.970 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

M Hashiramoto, et al. Site-directed Mutagenesis of GLUT1 in Helix 7 Residue 282 Results in Perturbation of Exofacial Ligand Binding. J Biol Chem. 1992 Sep 5;267(25):17502-7.
Malay Patra, et al. A Potent Glucose-Platinum Conjugate Exploits Glucose Transporters and Preferentially Accumulates in Cancer Cells. Angew Chem Int Ed Engl. 2016 Feb 12;55(7):2550-4.
G F Baker, et al. The Permeation of Human Red Cells by 4,6-O-ethylidene- -D-glucopyranose (Ethylidene Glucose). J Physiol. 1973 May;231(1):129-42.

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