

2-Deoxy-D-glucose

Catalog No: tcsc1718



Available Sizes

Size: 1g

Size: 5g



Specifications

CAS No:

154-17-6

Formula:

$C_6H_{12}O_5$

Pathway:

Metabolic Enzyme/Protease

Target:

Hexokinase

Purity / Grade:

>98%

Solubility:

H₂O : ≥ 24 mg/mL (146.20 mM); DMSO : ≥ 51 mg/mL (310.67 mM)

Alternative Names:

2-Deoxy-D-arabino-hexose;D-Arabino-2-deoxyhexose

Observed Molecular Weight:

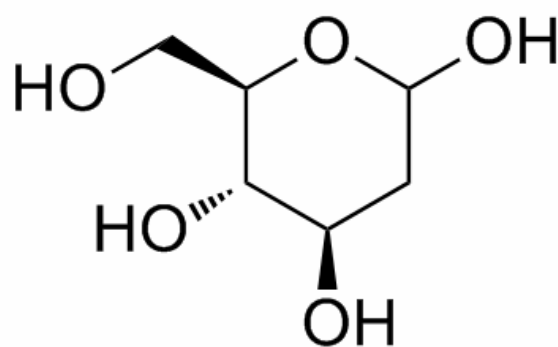
164.16

Product Description

2-Deoxy-D-glucose is a glucose analog that acts as a competitive inhibitor of glucose metabolism, inhibiting glycolysis via its actions on **hexokinase**.

In Vitro: 2-Deoxy-D-glucose (2-DG, 4, 8, or 16 mM) significantly reduces the level of ATP in MCF-7 cells in a dose- and time-dependent manner that parallels the effects of 2-DG on cell growth. The levels of phosphorylated Akt are significantly decreased, whereas the levels of phosphorylated AMPK and Sirt-1 are significantly increased in MCF-7 cells exposed to 2-Deoxy-D-glucose at 4, 8, or 16 mM for 1, 3, or 5 days in a dose- and time-dependent manner^[1]. 2-DG treatment increases the levels of pentose phosphate pathway (PPP) metabolites and augments the generation of NADPH by glucose-6-phosphate dehydrogenase. An increase in NADPH and upregulation of glutathione synthetase expression results in the increase in the reduced form of glutathione by 2-DG in NB4 cells^[3].

In Vivo: 2-Deoxy-D-glucose (0.03%, w/w) causes a 7% decrease in final weight that is statistically significant, and delays the appearance of palpable mammary carcinomas^[1]. 2-Deoxy-D-glucose (3 mmol/kg, i.v.) is decreased in a dose-dependent manner by insulin in rat muscle^[2].



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