Web: www.taiclone.com
Tel: +886-2-2735-9682
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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**.

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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 paralleles 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 resultes 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 delayes 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].