

Certificate of Analysis

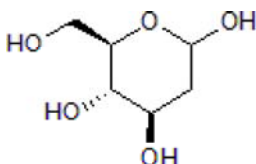
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Product Name: 2-Deoxy-D-glucose
CAS Number: 154-17-6
IUPAC Name: 2-Deoxy-D-arabino-hexose

Catalog No.: 4515 **Batch No.:** 3
EC Number: 205-823-0

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: C₆H₁₂O₅
Batch Molecular Weight: 164.16
Physical Appearance: White solid
Solubility: water to 100 mM
DMSO to 100 mM
Storage: Store at +4°C
Batch Molecular Structure:



2. ANALYTICAL DATA

¹H NMR: Consistent with structure
Mass Spectrum: Consistent with structure
Optical Rotation: [α]_D = +44.8 (Concentration = 2, Solvent = Water)
Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	43.9	7.37	
Found	43.94	7.38	

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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Description:

2-Deoxy-D-glucose is a non-metabolizable glucose analog. Inhibits phosphorylation of glucose by hexokinase; causes depletion of cellular ATP. Also inhibits phosphoglucose isomerase (PGI) competitively. Causes cell cycle inhibition and cell death in in vitro models of hypoxia; blocks tumor cell growth in animal models. Also shown to induce the unfolded protein response (UPR). 2-Deoxy-D-glucose disrupts N-glycan expression on the surface of pancreatic adenocarcinoma cells. 2-Deoxy-D-glucose enhances chimeric antigen receptor T cell activity in different xenograft mouse models of pancreatic adenocarcinoma cells.

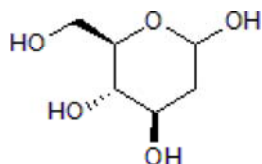
Physical and Chemical Properties:

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References:

Greco *et al* (2022) Disrupting N-glycan expression on tumor cells boosts chimeric antigen receptor T cell efficacy against solid malignancies. *Sci.Transl.Med.* **14** 3072. PMID: 35044789.

Ralser *et al* (2008) A catabolic block does not sufficiently explain how 2-deoxy-D-glucose inhibits cell growth. *Proc.Natl.Acad.Sci.USA* **105** 17807.

Kang and Hwang (2006) 2-deoxyglucose: an anticancer and antiviral therapeutic, but not any more a low glucose mimetic. *Life Sci.* **78** 1392. PMID: 16111712.

Storage: Store at +4°C

Solubility & Usage Info:

water to 100 mM

DMSO to 100 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

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