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Diagnostik & molekulare Diagnostik



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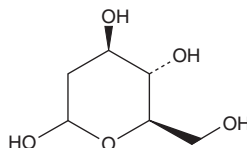
PRODUCT INFORMATION



2-deoxy-D-Glucose

Item No. 14325

CAS Registry No.: 154-17-6
Formal Name: 2-deoxy-D-arabino-hexose
Synonyms: Ba 2758, 2-DG, NSC 15193
MF: C₆H₁₂O₅
FW: 164.2
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

2-deoxy-D-Glucose is supplied as a crystalline solid. A stock solution may be made by dissolving the 2-deoxy-D-glucose in the solvent of choice. 2-deoxy-D-Glucose is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of 2-deoxy-D-glucose in these solvents is approximately 20 and 10 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of 2-deoxy-D-glucose can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 2-deoxy-D-glucose in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

2-deoxy-D-Glucose is a glucose antimetabolite and an inhibitor of glycolysis.^{1,2} It inhibits hexokinase, the enzyme that converts glucose to glucose-6-phosphate, as well as phosphoglucose isomerase, the enzyme that converts glucose-6-phosphate to fructose-6-phosphate.³ 2-deoxy-D-glucose (16 mM) induces apoptosis in SK-BR-3 cells, as well as inhibits the growth of 143B osteosarcoma cells cultured under hypoxic conditions when used at a concentration of 2 mg/ml.^{4,5} *In vivo*, 2-deoxy-D-glucose (500 mg/kg) reduces tumor growth in 143B osteosarcoma and MV522 non-small cell lung cancer mouse xenograft models when used alone or in combination with doxorubicin (Item No. 15007) or paclitaxel (Item No. 10461).⁶

References

1. Kang, H.T. and Hwang, E.S. 2-Deoxyglucose: An anticancer and antiviral therapeutic, but not any more a low glucose mimetic. *Life Sci.* **78(12)**, 1392-1399 (2006).
2. Aft, R.L., Zhang, F.W., and Gius, D. Evaluation of 2-deoxy-D-glucose as a chemotherapeutic agent: Mechanism of cell death. *Br. J. Cancer* **87(7)**, 805-812 (2002).
3. Ralser, M., Wamelink, M.M., Struys, E.A., *et al.* A catabolic block does not sufficiently explain how 2-deoxy-D-glucose inhibits cell growth. *Proc. Natl. Acad. Sci. USA* **105(46)**, 17807-17811 (2008).
4. Liu, H., Savaraj, N., Priebe, W., *et al.* Hypoxia increases tumor cell sensitivity to glycolytic inhibitors: A strategy for solid tumor therapy (Model C). *Biochem. Pharmacol.* **64(12)**, 1745-1751 (2002).
5. Zhang, X.D., Deslandes, E., Villedieu, M., *et al.* Effect of 2-deoxy-D-glucose on various malignant cell lines *in vitro*. *Anticancer Res.* **26**, 3561-3566 (2006).
6. Maschek, G., Savaraj, N., Priebe, W., *et al.* 2-deoxy-D-glucose increases the efficacy of adriamycin and paclitaxel in human osteosarcoma and non-small cell lung cancers *in vivo*. *Cancer Res.* **64(1)**, 31-34 (2004).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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