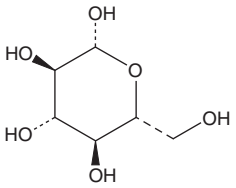
PRODUCT INFORMATION

β-D-Glucose

Item No. 16775

CAS Registry No.: 492-61-5
Formal Name: β-D-glucopyranose
MF: $C_6H_{12}O_6$
FW: 180.2
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

β-D-Glucose is supplied as a crystalline solid. A stock solution may be made by dissolving the β-D-glucose in the solvent of choice, which should be purged with an inert gas. β-D-Glucose is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of β-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 β-D-glucose can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of β-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

D-Glucose, a naturally occurring monosaccharide found in plants, is the primary energy source for living organisms.[1] It is utilized as a metabolic intermediate by cells for either aerobic or anaerobic respiration. D-Glucose exists in two cyclic forms, α-D-glucose and β-D-glucose, based on the position of the substituent at the anomeric center.[2] α-D-Glucose is the monomer unit in starch, whereas β-D-glucose is the monomer unit in cellulose.[2] When one of these anomers is added to solution, it undergoes reversible epimerization to the other via an open-chain form, during which the specific rotation of the solution changes gradually until it reaches equilibrium. The existence of multiple binding modes of this single monosaccharide has been studied as a model scaffold to design compounds with increased probability of ligand binding.[3]

References

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2. Horton, H.R. Carbohydrates, Chapter 8, *in* Principles of biochemistry. Horton, H.R., Moran, L.A., Ochs, R.S. *et al*., editors, 9, Neil Patterson Publishers, Englewood Cliffs, NJ, 16-22 (1993).
3. Hirschmann, R.F., Nicolaou, K.C., Angeles, A.R., *et al*. The β-D-glucose scaffold as a β-turn mimetic. *Acc. Chem. Res.* **42(10)**, 1511-1520 (2009).

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