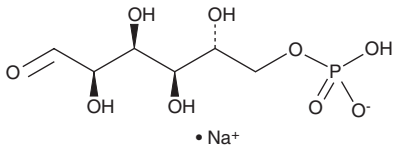
PRODUCT INFORMATION

D-Glucose-6-phosphate (sodium salt)

Item No. 20376

CAS Registry No.: 54010-71-8
Formal Name: D-glucose-6-(dihydrogen phosphate), monosodium salt
Synonyms: G6P, Sodium Glucose-6-Phosphate
MF: $C_6H_{12}O_9P \bullet Na$
FW: 282.1
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

D-Glucose-6-phosphate (sodium salt) is supplied as a crystalline solid. Aqueous solutions of D-glucose-6-phosphate (sodium salt) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of D-glucose-6-phosphate (sodium salt) 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-6-phosphate is formed in cells when glucose is phosphorylated by hexokinase (or glucokinase) or by the conversion of glucose-1-phosphate by phosphoglucomutase, which is the first step of glycogen synthesis.[1] It is stored as glycogen when blood glucose levels are high. Disruption of D-glucose-6-phosphate activity leads to glycogen storage disease type I or von Gierke's disease, a group of inherited metabolic diseases characterized by severe hypoglycemia, growth retardation, and hepatomegaly, due to accumulation of glycogen and fat in the liver.[2,3] D-Glucose-6-phosphate is also the starting molecule of both glycolysis and the pentose phosphate pathways.[4] Because cancer cells adopt glycolysis as a major source of metabolic energy production, and the pentose phosphate pathway plays a role in helping glycolytic cancer cells to meet their anabolic demands, this compound can be used to study the progression of this process.[5]

References

1. Berg, J. M., Tymoczko, J. L., and Stryer, L. Section 25.5 NAD^+, FAD, and coenzyme A are formed from ATP. *Biochemistry.* 5th edition, *W. H. Freeman* (2002).
2. Cappellini, M. D. and Fiorelli, G. Glucose-6-phosphate dehydrogenase deficiency. *Lancet* **371(9606)**, 64-74 (2008).
3. Beutler, E. Glucose-6-phosphate dehydrogenase deficiency: A historical perspective. *Blood* **111(1)**, 16-24 (2008).
4. Gumaa, K. A. and McLean, P. The pentose phosphate pathway of glucose metabolism: Enzyme profiles and transient and steady-state content of intermediates of alternative pathways of glucose metabolism in Krebs ascites cells. *Biochem. J.* **115(5)**, 1009-1029 (1969).
5. Patra, K. C. and Hay, N. The pentose phosphate pathway and cancer. *Trends Biochem. Sci.* **39(8)**, 347-354 (2014).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM