

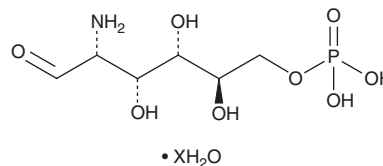
# PRODUCT INFORMATION



## D-Glucosamine-6-phosphate (hydrate)

Item No. 30869

**Formal Name:** 2-amino-2-deoxy-D-glucose  
6-(dihydrogen phosphate), hydrate  
**Synonym:** D-GlcN-6-P  
**MF:**  $C_6H_{14}NO_8P \cdot XH_2O$   
**FW:** 259.2  
**Purity:**  $\geq 95\%$   
**Supplied as:** A solid  
**Storage:**  $-20^\circ C$   
**Stability:**  $\geq 4$  years



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

### Laboratory Procedures

D-Glucosamine-6-phosphate (hydrate) is supplied as a solid. Aqueous solutions of D-glucosamine-6-phosphate (hydrate) can be prepared by directly dissolving the solid in aqueous buffers. The solubility of D-glucosamine-6-phosphate (hydrate) 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-Glucosamine-6-phosphate (D-GlcN-6-P) is a monosaccharide intermediate of the hexosamine biosynthetic pathway.<sup>1</sup> It is formed from D-fructose-6-phosphate by glucosamine-6-phosphate synthase (GlmS) in the presence of glutamine or from D-glucosamine (Item No. 27055) by N-acetyl-D-glucosamine (GlcNAc) kinase.<sup>2,3,4</sup> D-GlcN-6-P binds the GlmS riboswitch ( $K_i = 380 \mu M$ ), a ribozyme located in the 5'-UTR of the gene encoding GlmS that, when bound by D-GlcN-6-P, inhibits GlmS production and decreases D-GlcN-6-P levels.<sup>2,5</sup> It is a precursor in the biosynthesis of uridine diphosphate-N-acetylglucosamine (UDP-GlcNAc), a substrate for protein glycosylation and a component of bacterial cell walls.<sup>4,6</sup>

### References

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5. Cochrane, J.C., Lipchock, S.V., and Strobel, S.A. Structural investigation of the GlmS ribozyme bound to its catalytic cofactor. *Chem. Biol.* **14(1)**, 97-105 (2007).
6. Rodríguez-Díaz, J., Rubio-Del-Campo, A., and Yebra, M.J. Regulatory insights into the production of UDP-N-acetylglucosamine by *Lactobacillus casei*. *Bioengineered* **3(6)**, 339-342 (2012).

#### 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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#### 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