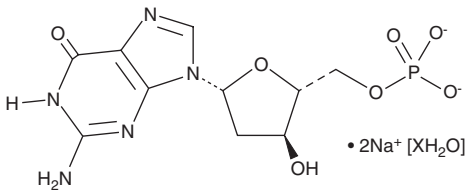
PRODUCT INFORMATION

2'-Deoxyguanosine 5'-monophosphate (sodium salt hydrate)

Item No. 16408

CAS Registry No.: 146877-98-7
Formal Name: 2'-deoxy-5'-guanylic acid, disodium salt hydrate
Synonym: dGMP
MF: $C_{10}H_{12}N_5O_7P \bullet 2Na\ [XH_2O]$
FW: 391.2
Purity: ≥95%
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

2'-Deoxyguanosine 5'-monophosphate (dGMP) (sodium salt hydrate) is supplied as a crystalline solid. Aqueous solutions of dGMP (sodium salt hydrate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of dGMP (sodium salt 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

dGMP is used as a substrate of guanylate kinases to generate dGDP, which in turn is phosphorylated to dGTP, a nucleotide precursor used in DNA synthesis. In addition, dGMP can be efficiently phosphorylated by the type I thymidylate kinase of the malarial agent *P. falciparum*.[1,2] In humans, deficiency of mitochondrial deoxyguanosine kinase, which synthesizes dGMP from ATP and deoxyguanosine, contributes to mitochondrial DNA depletion syndrome.[3,4]

References

1. Kandeel, M., Kitamura, Y., and Kitade, Y. The exceptional properties of Plasmodium deoxyguanylate pathways as a potential area for metabolic and drug discovery studies. *Nucleic Acids Symp. Ser. (Oxf)* **53**, 39-40 (2009).
2. Whittingham, J.L., Carrero-Lerida, J., Brannigan, J.A., *et al.* Structural basis for the efficient phosphorylation of AZT-MP (3'-azido-3'-deoxythymidine monophosphate) and dGMP by Plasmodium falciparum type I thymidylate kinase. *Biochem. J.* **428(3)**, 499-509 (2014).
3. Taanman, J.W., Muddle, J.R., and Muntau, A.C. Mitochondrial DNA depletion can be prevented by dGMP and dAMP supplementation in a resting culture of deoxyguanosine kinase-deficient fibroblasts. *Hum. Mol. Genet.* **12(15)**, 1839-1845 (2003).
4. Bulst, S., Abicht, A., Holinski-Feder, E., *et al. In vitro* supplementation with dAMP/dGMP leads to partial restoration of mtDNA levels in mitochondrial depletion syndromes. *Hum. Mol. Genet.* **18(9)**, 1590-1599 (2009).

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