

PRODUCT INFORMATION



Tenofovir diphosphate (sodium salt)

Item No. 27057

Formal Name: diphosphoric acid, anhydride with [[[1R)-2-(6-amino-9H-purin-9-yl)-1-methylethoxy]methyl] phosphonic acid, sodium salt

Synonyms: PMPApp, TFV-DP

MF: C₉H₁₆N₅O₁₀P₃ • XNa

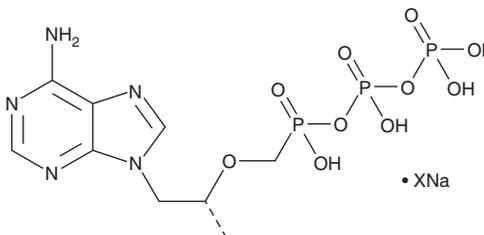
FW: 447.2

Purity: ≥95%

Supplied as: A 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

Tenofovir diphosphate (sodium salt) is supplied as a solid. A stock solution may be made by dissolving the tenofovir diphosphate (sodium salt) in the solvent of choice. Tenofovir diphosphate (sodium salt) is soluble in Tris-HCl (pH 7.5). We do not recommend storing the aqueous solution for more than one day.

Description

Tenofovir diphosphate is an inhibitor of HIV reverse transcriptase (K_i s = 0.022 and 1.55 μ M for RNA and DNA, respectively) and hepatitis B virus (HBV) polymerase (K_i = 0.18 μ M).^{1,2} It is selective for these enzymes over DNA polymerase α and β , as well as mitochondrial DNA polymerase γ (K_i s = 5.2, 81.7, and 59.5 μ M, respectively). Tenofovir diphosphate is formed intracellularly through phosphorylation of the prodrugs tenofovir (Item No. 13874) and tenofovir disoproxil (Item No. 16922) by nucleotide kinases.³ Increased levels of tenofovir diphosphate in isolated peripheral blood mononuclear cells (PBMCs) correlate with a decrease in the risk of simian HIV (SHIV) acquisition in a macaque model of rectal SHIV transmission.⁴

References

1. Cherrington, J.M., Allen, S.J.W., Bischofberger, N., *et al.* Kinetic interaction of the diphosphates of 9-(2-phosphonylmethoxyethyl)adenine and other anti-HIV active purine congeners with HIV reverse transcriptase and human DNA polymerases α , β and γ . *Antivir. Chem. Chemother.* **6(4)**, 217-221 (1995).
2. Delaney, W.E., IV, Ray, A.S., Yang, H., *et al.* Intracellular metabolism and in vitro activity of tenofovir against hepatitis B virus. *Antimicrob. Agents Chemother.* **50(7)**, 2471-2477 (2006).
3. Robbins, B.L., Srinivas, R.V., Kim, C., *et al.* Anti-human immunodeficiency virus activity and cellular metabolism of a potential prodrug of the acyclic nucleoside phosphonate 9-R-(2-phosphonomethoxypropyl) adenine (PMPA), bis(isopropylloxymethylcarbonyl)PMPA. *Antimicrob. Agents Chemother.* **42(3)**, 612-617 (1998).
4. Anderson, P.L., Glidden, D.V., Bushman, L.R., *et al.* Tenofovir diphosphate concentrations and prophylactic effect in a macaque model of rectal simian HIV transmission. *J. Antimicrob. Chemother.* **69(9)**, 2470-2476 (2014).

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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