

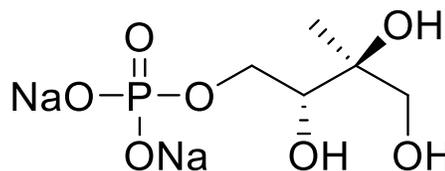
2-*C*-Methyl-D-erythritol 4-phosphate (MEP)

Catalog number: I-M051

Molecular Formula: $C_5H_{11}Na_2O_7P$

MW: 260.09

CAS: 206440-72-4



Solubility: water and most aqueous buffers, >5 mg/mL

Storage and Handling: Store dry at $-20^{\circ}C$. Stock solutions should be stored frozen ($-20^{\circ}C$ or below).

Background: Isoprenoid compounds are a diverse group of natural products which are essential components in all cells. Isoprenoids are biosynthesized from the simple precursors isopentenyl diphosphate (IPP) and dimethylallyl diphosphate (DMAPP). Eukaryotes, fungi, and some gram-positive bacteria produce IPP through the mevalonate (MVA) pathway whereas gram-negative and some gram-positive bacteria utilize the non-mevalonate or 2-*C*-methyl-D-erythritol-4-phosphate (MEP) pathway. MEP is formed from 1-deoxy-D-xylulose 5-phosphate (DXP) by MEP Synthase (DXP reductoisomerase) and coupled with CMP to form 4-diphosphocytidyl-2-*C*-methyl-D-erythritol (CDP-ME) by CDPME Synthase.

References: 1) Poliquin, K., Y. V. Ershov, et al. (2004). "Inactivation of *sll1556* in *Synechocystis* Strain PCC 6803 Impairs Isoprenoid Biosynthesis from Pentose Phosphate Cycle Substrates In Vitro." *J Bacteriol* 186(14): 4685-4693.
2) Eoh, H., A. C. Brown, et al. (2007). "Characterization of the *Mycobacterium tuberculosis* 4-Diphosphocytidyl-2-*C*-Methyl-d-Erythritol Synthase: Potential for Drug Development." *Journal of Bacteriology* 189(24): 8922-8927.
3) Lherbet, C., F. Pojer, et al. (2006). "Absence of Substrate Channeling between Active Sites in the *Agrobacterium tumefaciens* *IspDF* and *IspE* Enzymes of the Methyl Erythritol Phosphate Pathway." *Biochemistry* 45(11): 3548

Hazardous Properties and Cautions: The toxicological and pharmacological properties of this compound are not fully known. For further information see the MSDS on request. This product is manufactured and shipped only in small quantities, intended for research and development in a laboratory utilizing prudent procedures for handling chemicals of unknown toxicity, under the supervision of persons technically qualified to evaluate potential risks and authorized to enforce appropriate health and safety measures. As with all research chemicals, precautions should be taken to avoid unnecessary exposures or risks.

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