

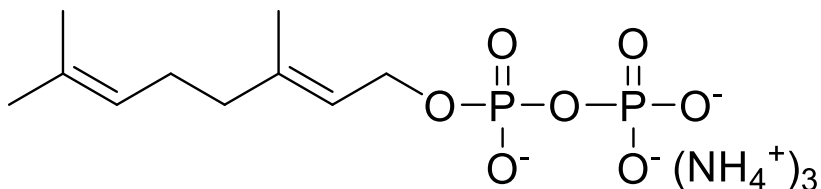
Geranyl Diphosphate (GPP)

Catalog number: I-0100

Molecular Formula: $C_{10}H_{20}N_3O_7P_2$

MW: 365.30

CAS: 104715-14-2



Alternate Name: Geranyl pyrophosphate

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

Storage and Handling: Store dry at -20°C . Stock solutions should be stored frozen (-20°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.

References: 1) Kuzuyama, T., J. P. Noel, et al. (2005). "Structural basis for the promiscuous biosynthetic prenylation of aromatic natural products." *Nature* 435(7044): 983.

2) McKay, S. A., W. L. Hunter, et al. (2003). "Insect attack and wounding induce traumatic resin duct development and gene expression of (-)-pinene synthase in Sitka spruce." *Plant Physiol* 133(1): 368-78.

3) Schillmiller, A. L., I. Schauvinhold, et al. (2009). "Monoterpenes in the glandular trichomes of tomato are synthesized from a neryl diphosphate precursor rather than geranyl diphosphate." *Proceedings of the National Academy of Sciences* 106(26): 10865-10870.

4) Falara, V., Akhtar, T. A., Nguyen, T. T. H., Spyropoulou, E. A., Bleeker, P. M., Schauvinhold, I., ... Pichersky, E. (2011). "The tomato terpene synthase gene family." *Plant Physiology*, 157(2), 770-789. DOI:10.1104/pp.111.179648

5) Burke, C. & Croteau, R. Interaction with the small subunit of geranyl diphosphate synthase modifies the chain length specificity of geranylgeranyl diphosphate synthase to produce geranyl diphosphate. *J Biol Chem*. 277, 3141-9. (2002).

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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