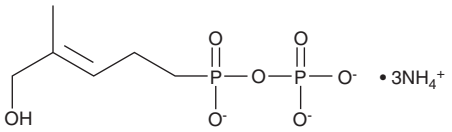
# PRODUCT INFORMATION

## (E)-C-HDMAPP (ammonium salt)

*Item No. 13151*

**CAS Registry No.:** 933030-60-5
**Formal Name:** P'-[(3E)-5-hydroxy-4-methyl-3-penten-1-yl]-isohypophosphoric acid, triammonium salt
**Synonym:** (E)-5-hydroxy-4-methylpent-3-enyl pyrophosphate
**MF:** $C_6H_{14}O_7P_2 \bullet 3NH_4$
**FW:** 311.2
**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

(E)-C-HDMAPP (ammonium salt) is supplied as a crystalline solid. Aqueous solutions of (E)-C-HDMAPP (ammonium salt) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of (E)-C-HDMAPP (ammonium salt) in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Synthetic and natural alkyl phosphates, also known as phosphoantigens, stimulate the proliferation of γδ-T lymphocytes.[1] Isopentenyl pyrophosphate, and related derivatives including (E)-hydroxy-dimethyl-allyl pyrophosphate ((E)-HDMAPP), are particularly effective activators of γδ-T cells.[2,3] (E)-C-HDMAPP is the pyrophosphonate form of (E)-HDMAPP. The pyrophosphonate moiety in (E)-C-HDMAPP is much less susceptible to chemical or enzymatic hydrolysis than its pyrophosphate counterpart. As a result, (E)-C-HDMAPP is much more stable in solution and in vascular circulation.[4] (E)-C-HDMAPP possesses comparable activity to (E)-HDMAPP, which is the most potent of the isoprenoid phosphoantigens. (E)-C-HDMAPP stimulates the synthesis of tumor necrosis factor (TNF-α) by γδ-T lymphocytes with an $IC_{50}$ value of 0.91 nM.[4] (E)-C-HDMAPP also significantly increases the number of circulating γδ-T cells in vivo, in cynomolgus monkeys.[4]

### References


1. Tanaka, Y., Sano, S., Nieves, E., *et al.* Nonpeptide ligands for human γδ T cells. *Proc. Natl. Acad. Sci. USA* **91(17)**, 8175-8179 (1994).
2. Poupot, M. and Fournié, J.J. Non-peptide antigens activating human Vγ9/Vδ2 T lymphocytes. *Immunol. Lett.* **95(2)**, 129-138 (2004).
3. Tanaka, Y., Morita, C.T., Tanaka, Y., *et al.* Natural and synthetic non-peptide antigens recognized by human γδ T cells. *Nature* **375(6527)**, 155-158 (1995).
4. Boëdec, A., Sicard, H., Dessolin, J., *et al.* Synthesis and biological activity of phosphonate analogues and geometric isomers of the highly potent phosphoantigen (E)-1-hydroxy-2-methylbut-2-enyl 4-diphosphate. *J. Med. Chem.* **51(6)**, 1747-1754 (2008).





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