

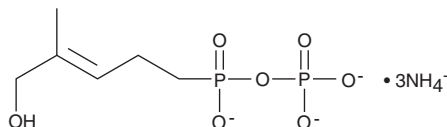
# Product Information



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

Catalog 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)-1-Hydroxy-2-Methylbut-2-enyl 4-Diphosphate (ammonium salt)  
**MF:** C<sub>6</sub>H<sub>14</sub>O<sub>7</sub>P<sub>2</sub> • 3NH<sub>4</sub>  
**FW:** 311.2  
**Purity:** ≥95%  
**Stability:** ≥2 years at -20°C  
**Supplied as:** A crystalline solid



### Laboratory Procedures

For long term storage, we suggest that (E)-C-HDMAPP (ammonium salt) be stored as supplied at -20. It should be stable for at least two years.

(E)-C-HDMAPP (ammonium salt) is supplied as a crystalline solid. It is sparingly soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. For biological experiments, we suggest that organic solvent-free aqueous solutions of (E)-C-HDMAPP (ammonium salt) be prepared by directly dissolving the crystalline compound 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.

Synthetic and natural alkyl phosphates, also known as phosphoantigens, stimulate the proliferation of  $\gamma\delta$ -T lymphocytes.<sup>1</sup> Isopentenyl pyrophosphate, and related derivatives including (E)-hydroxydimethylallyl pyrophosphate ((E)-HDMAPP), are particularly effective activators of  $\gamma\delta$ -T cells.<sup>2,3</sup> (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.<sup>4</sup> (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- $\alpha$ ) by  $\gamma\delta$ -T lymphocytes with an IC<sub>50</sub> value of 0.91 nM.<sup>4</sup> (E)-C-HDMAPP also significantly increases the number of circulating  $\gamma\delta$ -T cells *in vivo*, in cynomolgus monkeys.<sup>4</sup>

### References

1. Tanaka, Y., Sano, S., Nieves, E., *et al.* Nonpeptide ligands for human  $\gamma\delta$ -T cells. *Proc. Natl. Acad. Sci. USA* **91**, 8175-8179 (1994).
2. Poupot, M. and Fournié, J.-J. Non-peptide antigens activating human V $\gamma$ 9/V $\delta$ 2 T lymphocytes. *Immunol. Lett.* **95**, 129-138 (2004).
3. Tanaka, Y., Morita, C.T., Tanaka, Y., *et al.* Natural and synthetic non-peptide antigens recognized by human  $\gamma\delta$ -T cells. *Nature* **375**, 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**, 1747-1754 (2008).

### Related Product

DMAPP (ammonium salt) - Cat. No. 63180

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**WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.**

#### MATERIAL SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Material Safety Data Sheet, which has been sent *via* email to your institution.

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