

Product Data Sheet

Product Name: HDMAPP (ammonium salt)

Cat. No.: GC43807

Chemical Properties

Cas. No. 443892-56-6

Chemical Name mono[(2E)-hydroxy-3-methyl-2-butenyl] ester diphosphoric acid, triammonium salt

SMILES [O-]P(OP([O-])(OC/C=C(CO)\C)=O)([O-])=O.[NH4+].[NH4+].[NH4+]

Formula C₅H₉O₈P₂•3NH₄

M.Wt 313.2

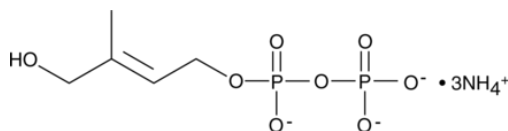
Solubility PBS (pH 7.2): 10 mg/ml

Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



Background

HDMAPP is a metabolite of the microbial dioxxyxylulose-phosphate pathway, which is analogous to the isopentenyl pyrophosphate pathway in mammals. It is a protease-resistant and phosphatase-sensitive pyrophosphate produced by bacteria and plants.[1] [2] HDMAPP is a non-peptide ligand, also called a phosphoantigen, that binds the T cell receptor on Vγ9Vδ2 peripheral blood lymphocytes with high affinity (EC₅₀ = 0.39 nM).[3] It induces the expansion of human memory Vγ9Vδ2 T cells, but does not increase their ability to inhibit intracellular mycobacterial growth.[4][5] Neonatal Vγ9Vδ2 T cells require micromolar concentrations of HDMAPP to drive expansion.[6]

Reference:

[1]. Poupot, M., and Fournié, J.J. Non-peptide antigens activating human Vγ9/Vδ2 T lymphocytes. Immunology Letters 95, 129-138 (2004).

[2]. Tanaka, Y., Morita, C.T., Tanaka, Y., et al. Natural and synthetic non-peptide antigens

Caution: Product has not been fully validated for medical applications. For research use only.

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recognized by human $\gamma\delta$ T cells. Nature 375, 155-158 (1995).

[3]. 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. Journal of Medicinal Chemistry 51, 1747-1754 (2008).

[4]. DeBarros, A., Chevas-Ferreira, M., d'Orey, F., et al. CD70-CD27 interactions provide survival and proliferative signals that regulate T cell receptor-driven activation of human $\gamma\delta$ peripheral blood lymphocytes. European Journal of Immunology 41(1), 195-201 (2011).

[5]. Spencer, C.T., Abate, G., Blazevic, A., et al. Only a subset of phosphoantigen-responsive $\gamma\delta$ T cells mediate protective TB immunity. Journal of Immunology 181(7), 4471-4484 (2008).

[6]. Moens, E., Brouwer, M., Dimova, T., et al. IL-23R and TCR signaling drives the generation of neonatal V γ 9V δ 2 T cells expressing high levels of cytotoxic mediators and producing IFN- γ and IL-17. Journal of Leukocyte Biology 89(5), 743-752 (2011).

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