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Zuschläge

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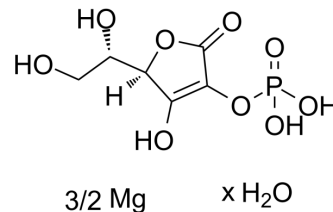
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L-Ascorbic acid 2-phosphate magnesium hydrate

Cat. No.:	HY-103701B
CAS No.:	1713265-25-8
Molecular Formula:	C ₆ H ₉ O ₉ P.xH ₂ O.3/2Mg
Target:	Phosphatase; Reactive Oxygen Species; Endogenous Metabolite
Pathway:	Metabolic Enzyme/Protease; Immunology/Inflammation; NF-κB
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro	H ₂ O : 5 mg/mL (ultrasonic and warming and heat to 60°C)
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BIOLOGICAL ACTIVITY

Description L-ascorbic acid 2-phosphate (2-Phospho-L-ascorbic acid) magnesium hydrate is a long-acting vitamin C derivative that can stimulate collagen formation and expression. L-ascorbic acid 2-phosphate magnesium hydrate can be used as a culture medium supplement for the osteogenic differentiation of human adipose stem cells (hASCs). L-ascorbic acid 2-phosphate magnesium hydrate increases alkaline phosphatase (ALP) activity and expression of runx2A in hASCs during the osteogenic differentiation^{[1][2][3]}.

In Vitro L-Ascorbic acid 2-phosphate (0.1-1.5 mM; 2 to 3 weeks with medium exchange every 2 to 3 days) magnesium hydrate significantly stimulates cell growth, whereas addition of L-Ascorbic acid (Asc) achieves only weak growth stimulation. A combination of Asc-2P and bFGF significantly increases cell growth, but supplementation with EGF and/or insulin does not have any additional effect^[1].

L-Ascorbic acid 2-phosphate (50 μM-250 μM) magnesium hydrate is needed for the effective osteogenic differentiation of human adipose stem cells (hASCs), and higher concentrations of AsA2-P results in increased runx2 expression and ALP activity. The highest proliferation, ALP activity and runx2 expression is achieved with 150 μM AsA2-P and 10 nM dexamethasone (Dex), and 250 μM AsA2-P and 5 nM Dex^[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay^[1]

Cell Line:	Human corneal endothelial cells (HCECs)
Concentration:	0.1 mM; 0.3 mM; 1.5 mM
Incubation Time:	2 to 3 weeks with medium exchange every 2 to 3 days
Result:	Stimulated HCEC cells growth.

REFERENCES

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- [1]. Shima N, et al. Increased proliferation and replicative lifespan of isolated human corneal endothelial cells with L-ascorbic acid 2-phosphate. *Invest Ophthalmol Vis Sci*. 2011 Nov 7;52(12):8711-7.
- [2]. Kurata S, et al. Epidermal growth factor inhibits transcription of type I collagen genes and production of type I collagen in cultured human skin fibroblasts in the presence and absence of L-ascorbic acid 2-phosphate, a long-acting vitamin C derivative. *J Biol Chem*. 1991 May 25;266(15):9997-10003.
- [3]. Kyllönen L, et al. Effects of different serum conditions on osteogenic differentiation of human adipose stem cells in vitro. *Stem Cell Res Ther*. 2013 Feb 15;4(1):17.
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Caution: Product has not been fully validated for medical applications. For research use only.

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