L-Ascorbic acid 2-phosphate magnesium hydrate

Cat. No.: HY-103701B

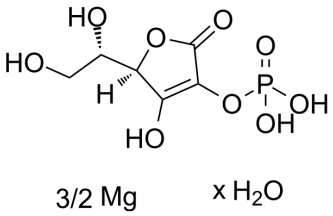
CAS No.: 1713265-25-8

Molecular Formula: $C_6H_9O_9P.xH_2O.{}_3/_2Mg$

Target: Phosphatase; Reactive Oxygen Species; Endogenous Metabolite

Pathway: Metabolic Enzyme/Protease; Immunology/Inflammation; NF-κB

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



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

[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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