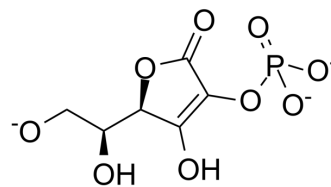


## L-Ascorbic acid 2-phosphate magnesium

<b>Cat. No.:</b>	HY-103701A
<b>CAS No.:</b>	113170-55-1
<b>Molecular Formula:</b>	C <sub>6</sub> H <sub>9</sub> O <sub>9</sub> P <sub>0.3</sub> /2Mg
<b>Molecular Weight:</b>	292.56
<b>Target:</b>	Phosphatase; Reactive Oxygen Species; Endogenous Metabolite
<b>Pathway:</b>	Metabolic Enzyme/Protease; Immunology/Inflammation; NF-κB
<b>Storage:</b>	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



1.5 Mg<sup>2+</sup>

### SOLVENT & SOLUBILITY

#### In Vitro

H<sub>2</sub>O : 25 mg/mL (85.45 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	3.4181 mL	17.0905 mL	34.1810 mL
	5 mM	0.6836 mL	3.4181 mL	6.8362 mL
	10 mM	0.3418 mL	1.7091 mL	3.4181 mL

Please refer to the solubility information to select the appropriate solvent.

### BIOLOGICAL ACTIVITY

#### Description

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

#### IC<sub>50</sub> & Target

Human Endogenous Metabolite

#### In Vitro

L-Ascorbic acid 2-phosphate (0.1-1.5 mM; 2 to 3 weeks with medium exchange every 2 to 3 days) 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<sup>[1]</sup>. L-Ascorbic acid 2-phosphate (50 μM-250 μM) 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<sup>[3]</sup>.

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

### Cell Viability Assay<sup>[1]</sup>

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.

## CUSTOMER VALIDATION

- Autophagy. 2022 Jul 4.

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## 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.

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

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