L-Ascorbic acid sodium salt

Cat. No.: HY-B0166A

CAS No.: 134-03-2

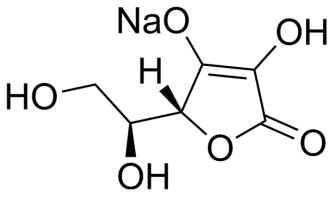
Molecular Formula: $C_6H_7NaO_6$

Molecular Weight: 198.11

Target: Reactive Oxygen Species; Apoptosis; Calcium Channel; Endogenous Metabolite

Pathway: Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB; Apoptosis; Membrane Transporter/Ion Channel; Neuronal Signaling

Storage: 4°C, sealed storage, away from moisture and light
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 100 mg/mL (504.77 mM; Need ultrasonic)
DMSO : 1 mg/mL (5.05 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	5.0477 mL	25.2385 mL	50.4770 mL
5 mM	1.0095 mL	5.0477 mL	10.0954 mL
10 mM	0.5048 mL	2.5239 mL	5.0477 mL

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

In Vivo

1. Add each solvent one by one: PBS
Solubility: 50 mg/mL (252.39 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

L-Ascorbic acid sodium salt (Sodium ascorbate), an electron donor, is an endogenous antioxidant agent. L-Ascorbic acid sodium salt selectively inhibits $Ca_V3.2$ channels with an IC_{50} of 6.5 μM. L-Ascorbic acid sodium salt is also a collagen deposition enhancer and an elastogenesis inhibitor[1][2][3].

IC_{50} & Target			
	T-type calcium channel	Microbial Metabolite	Human Endogenous Metabolite

In Vitro

The conditioned medium for B16F10 cells significantly inhibits cell apoptosis induced by L-Ascorbic acid sodium salt (Sodium L-ascorbate) (10 mM), and the effective ingredients in the medium show a relative molecular mass below 5,000[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Tg rats treated with L-Ascorbic acid sodium salt (Sodium L-ascorbate) show a higher incidence of carcinoma (29.6%),

compared to those without L-Ascorbic acid sodium salt (15.4%). Independent of the L-Ascorbic acid sodium salt treatment, transgenic rats exhibit various kinds of malignant tumors in various organs[5].
After 12 weeks of PEITC-treatment, both simple hyperplasia and papillary or nodular (PN) hyperplasia have developed in all animals, but the majority of these lesions have disappeared at week 48, irrespective of the L-Ascorbic acid sodium salt-treatment. The same lesions after 24 weeks of PEITC-treatment have progressed to dysplasia and carcinoma, in a small number of cases by week 48, but enhancement by the L-Ascorbic acid sodium salt-treatment is evident only with simple hyperplasias and PN hyperplasias in rats[6].
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PROTOCOL

Animal Administration [3]

A total of 40 7-week-old male Tg rats are divided into 2 groups. Twenty-seven (group 1) and 13 (group 2) rats are given a powdered MF diet with or without 5% sodium L-ascorbate, respectively. Similarly, a total of 42 7-week-old male Non-tg rats are divided into 2 groups, and 30 (group 3) and 12 (group 4) animals are given a diet with or without 5% sodium L-ascorbate, respectively.
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Immunol. 2022 Dec 21.
- Mil Med Res. 2020 Nov 1;7(1):52.
- Redox Biol. 2022 Aug;54:102392.
- Sci China Life Sci. 2018 Oct;61(10):1151-1167.
- Biomed Pharmacother. September 2022, 113558.

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REFERENCES

[1]. Hinek A, et al. Sodium L-ascorbate enhances elastic fibers deposition by fibroblasts from normal and pathologic human skin. J Dermatol Sci. 2014 Sep;75(3):173-82.

[2]. Yang X, et al. Mouse melanoma cell line B16F10-derived conditioned medium inhibits sodium L-ascorbate-induced B16F10 cell apoptosis. Nan Fang Yi Ke Da Xue Xue Bao. 2012 Feb;32(2):146-50.

[3]. Morimura K, et al. Lack of urinary bladder carcinogenicity of sodium L-ascorbate in human c-Ha-ras proto-oncogene transgenic rats. Toxicol Pathol. 2005;33(7):764-7.

[4]. Takagi H, et al. Limited tumor-initiating activity of phenylethyl isothiocyanate by promotion with sodium L-ascorbate in a rat two-stage urinary bladder carcinogenesis model. Cancer Lett. 2005 Mar 10;219(2):147-53.

[5]. Aleksander Hinek, et al. Sodium L-ascorbate enhances elastic fibers deposition by fibroblasts from normal and pathologic human skin. J Dermatol Sci. 2014 Sep;75(3):173-82.

[6]. Michael T Nelson, et al. Molecular mechanisms of subtype-specific inhibition of neuronal T-type calcium channels by ascorbate. J Neurosci. 2007 Nov 14;27(46):12577-83.

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

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