

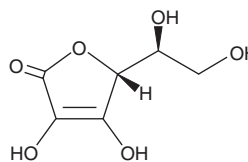
PRODUCT INFORMATION



L-Ascorbic Acid

Item No. 14656

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|--------------------------|---|
| CAS Registry No.: | 50-81-7 |
| Formal Name: | (R)-5-((S)-1,2-dihydroxyethyl)-3,4-dihydroxyfuran-2(5H)-one |
| Synonyms: | Ascorbate, NSC 33832, NSC 218455, Vitamin C |
| MF: | C ₆ H ₈ O ₆ |
| FW: | 176.1 |
| Purity: | ≥95% |
| UV/Vis.: | λ _{max} : 245 nm |
| Supplied as: | A crystalline solid |
| Storage: | -20°C |
| Stability: | ≥4 years |



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

L-Ascorbic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the L-ascorbic acid in the solvent of choice, which should be purged with an inert gas. L-Ascorbic acid is slightly soluble in organic solvents such as DMSO and dimethyl formamide. It is also soluble in water. The solubility of L-ascorbic acid in water is approximately 15 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of L-ascorbic acid can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of L-ascorbic acid in PBS (pH 7.2) is approximately 15 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

L-Ascorbic acid is a naturally occurring electron donor and therefore serves as a reducing agent.¹ It is synthesized from glucose in the liver of most mammalian species, excluding humans, non-human primates, or guinea pigs who must obtain it through dietary consumption. In humans, L-ascorbic acid acts as an electron donor for eight different enzymes, including those related to collagen hydroxylation, carnitine synthesis (which aids in the generation of adenosine triphosphate), norepinephrine synthesis, tyrosine metabolism, and amidating peptides.²⁻⁶ L-Ascorbic acid demonstrates antioxidant activity that may be of some benefit for reducing the risk of developing chronic diseases such as cancer, cardiovascular disease, and cataracts.¹

References

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2. Gropper, S.S., Smith, J.L., and Groff, J.L. The water-soluble vitamins, Chapter 9, in *Advanced Nutrition and Human Metabolism*. 4, Thomson Wadsworth, 259-275 (2005).
3. Peterkofsky, B. Ascorbate requirement for hydroxylation and secretion of procollagen: Relationship to inhibition of collagen synthesis in scurvy. *Am. J. Clin. Nutr.* **54(6)**, 1135S-1140S (1991).
4. Rebouche, C.J. Ascorbic acid and carnitine biosynthesis. *Am. J. Clin. Nutr.* **54(6)**, 1147S-1152S (1991).
5. Diliberto, E.J., Jr., Daniels, A.J., and Viveros, O.H. Multicompartmental secretion of ascorbate and its dual role in dopamine β-hydroxylation. *Am. J. Clin. Nutr.* **54(6)**, 1163S-1172S (1991).
6. Englard, S. and Seifter, S. The biochemical functions of ascorbic acid. *Annu. Rev. Nutr.* **6**, 365-406 (1986).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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