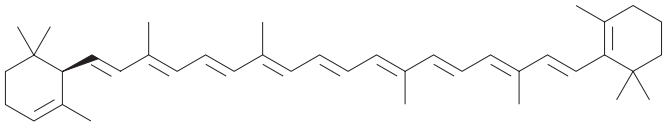
PRODUCT INFORMATION

α-Carotene

Item No. 19772

CAS Registry No.:	7488-99-5
Formal Name:	(6'R)-β,ε-carotene
Synonym:	all-*trans*-α-Carotene
MF:	$C_{40}H_{56}$
FW:	536.9
Purity:	≥95%
Supplied as:	A 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

α-Carotene is supplied as a solid. A stock solution may be made by dissolving the α-carotene in the solvent of choice, which should be purged with an inert gas. α-Carotene is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of α-carotene in these solvents is approximately 1 and 0.1 mg/ml, respectively.

α-Carotene is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, α-carotene should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. α-Carotene has a solubility of approximately 0.1 mg/ml in a 1:10 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

α-Carotene is a precursor of vitamin A (Item No. 20241) that has been found in various fruits and vegetables.[1] It inhibits proliferation of GOTO human neuroblastoma cells more potently than β-carotene (Item No. 16837) and halts the cell cycle at the G_0/G_1 phase concomitantly with a reduction in the mRNA expression of the protooncogene N-Myc.[2] It is also more potent than β-carotene in mouse models of skin and lung carcinogenesis and decreases the number of hepatomas in mice with spontaneous liver carcinogenesis when administered in drinking water at a concentration of 0.05%.[3] α-Carotene levels are increased in patients with coronary heart disease and are inversely correlated with the risk of estrogen receptor-negative breast cancer.[4,5]

References

1. Bushway, R.J. and Wilson, A.M. Determination of α- and β-carotene in fruit and vegetables by high performance liquid chromatography. *Can. Inst. Food Sci. Technol. J.* **15(3)**, 165-169 (1982).
2. Murakoshi, M., Takayusa, J., Kimura, O., *et al.* Inhibitory effects of α-carotene on proliferation of the human neuroblastoma cell line GOTO. *J. Natl. Cancer Inst.* **81(21)**, 1649-1652 (1989).
3. Murakoshi, M., Nishino, H., Satomi, Y., *et al.* Potent preventive action of α-carotene against carcinogenesis: spontaneous liver carcinogenesis and promoting stage of lung and skin carcinogenesis in mice are suppressed more effectively by α-carotene than by β-carotene. *Cancer Res.* **52(23)**, 6583-6587 (1992).
4. Kontush, A., Spranger, T., Reich, A., *et al.* Lipophilic antioxidants in blood plasma as markers of atherosclerosis: The role of α-carotene and γ-tocopherol. *Atherosclerosis* **144(1)**, 117-122 (1999).
5. Zhang, X., Spiegelman, D., Baglietto, L., *et al.* Carotenoid intakes and risk of breast cancer defined by estrogen receptor and progesterone receptor status: A pooled analysis of 18 prospective cohort studies. *Am. J. Clin. Nutr.* **95(3)**, 713-725 (2012).

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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