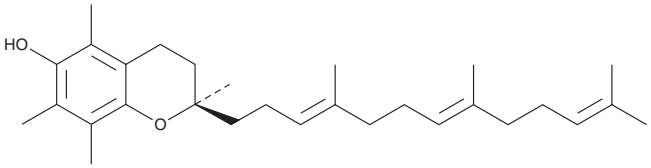
PRODUCT INFORMATION

α-Tocotrienol

Item No. 10008377

CAS Registry No.:	58864-81-6
Formal Name:	3,4-dihydro-2,5,7,8-tetramethyl-2R-[(3E,7E)-4,8,12-trimethyl-3,7,11-tridecatrienyl)]-2H-1-benzopyran-6-ol
MF:	$C_{29}H_{44}O_2$
FW:	424.7
Purity:	≥98%
UV/Vis.:	λ_{max}: 289 nm
Supplied as:	A solution in ethanol
Storage:	-20°C
Stability:	≥2 years



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

Laboratory Procedures

α-Tocotrienol is supplied as a solution in ethanol. To change the solvent, simply evaporate the ethanol under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of α-tocotrienol in these solvents is approximately 10 mg/ml.

If aqueous stock solutions are required for biological experiments, they can best be prepared by diluting the organic solvent into aqueous buffers or isotonic saline. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

Description

α-Tocotrienol is an antioxidant and a form of vitamin E that has been found in rice bran and has neuroprotective properties.[1-4] It reduces cell death induced by hydrogen peroxide, paraquat, S-nitrocysteine, SIN-1 (Item No. 82220), or L-buthionine-(S,R)-sulfoximine (BSO; Item No. 14484) in rat striatal cultures when used at concentrations ranging from 0.1 to 10 µM.[2] Cytosolic microinjection of α-tocotrienol prevents glutamate-induced cell death and phosphorylation of 12-lipoxygenase (12-LO) in HT4 neurons.[3] It reduces glutamate-induced cytosolic and mitochondrial production of reactive oxygen species (ROS), accumulation of N-terminally truncated Bcl-xL (ΔN-Bcl-xL), and cell death in primary rat hippocampal neurons.[4] α-Tocotrienol (50 mg/kg) reduces infarct size in a spontaneously hypertensive rat model of stroke induced by tandem right common carotid artery and middle cerebral artery occlusion.[3]

References

1. Kamal-Eldin, A. and Appelqvist, L.-Å. The chemistry and antioxidant properties of tocopherols and tocotrienols. *Lipids* **31**, 671-701 (1996).
2. Osakada, F., Hashino, A., Kume, T., *et al.* α-Tocotrienol provides the most potent neuroprotection among vitamin E analogs on cultured striatal neurons. *Neuropharmacology* **47**, 904-915 (2004).
3. Khanna, S., Roy, S., Slivka, S., *et al.* Neuroprotective properties of the natural vitamin E α-tocotrienol. *Stroke* **36**, 2258-2264 (2005).
4. Park, H.-A., Mnatsakanyan, N., Broman, K., *et al.* Alpha-tocotrienol prevents oxidative stress-mediated post-translational cleavage of Bcl-xL in primary hippocampal neurons. *Int. J. Mol. Sci.* **21(1)**, 220 (2020).

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