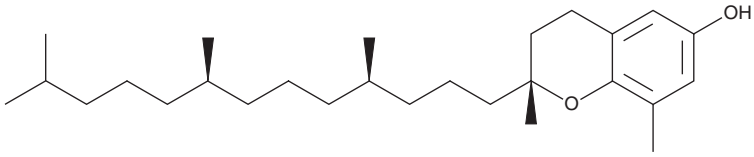
PRODUCT INFORMATION

(+)-δ-Tocopherol

Item No. 31589

CAS Registry No.: 119-13-1
Formal Name: (2R)-3,4-dihydro-2,8-dimethyl-2-[(4R,8R)-4,8,12-trimethyltridecyl]-2H-1-benzopyran-6-ol
Synonym: D-δ-Tocopherol
MF: $C_{27}H_{46}O_2$
FW: 402.7
Purity: ≥98%
Supplied as: A solution in hexane
Storage: -20°C
Stability: ≥2 years
Item Origin: Plant/Unidentified sp.



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

Laboratory Procedures

(+)-δ-Tocopherol is supplied as a solution in hexane. To change the solvent, simply evaporate the hexane under a gentle stream of nitrogen and immediately add the solvent of choice. (+)-δ-Tocopherol is soluble in ethanol, methanol, and chloroform.

Description

(+)-δ-Tocopherol is a biologically active form of vitamin E, a lipid-soluble antioxidant that protects cellular membranes from oxidative damage.[1,2] It reduces cumene hydroperoxide-induced lipid peroxidation in hepatocytes when used at a concentration of 20 µM but induces lipid peroxidation in hepatic microsomes at 100 µM.[3] (+)-δ-Tocopherol (40 µM) decreases capillary formation of HMEC-1 blood endothelial cells.[4] It also decreases the expression of VCAM in, and the invasiveness of, HMEC-1 cells. (+)-δ-Tocopherol (10 µM) reduces estrogen-induced increases in the expression of the estrogen-responsive genes encoding TFF/pS2, cathepsin D, PGR, CITED1, and SERPINA1 and the levels of 8-hydroxy-2'-deoxyguanosine (8-oxo-dG) and nitrotyrosine in MCF-7 breast cancer cells.[5] Dietary administration of (+)-δ-tocopherol (0.2%) reduces tumor growth in an estrogen-supplemented MCF-7 mouse xenograft model.

References

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2. van Acker, F.A., Schouten, O., Haenen, G.R., *et al.* Flavonoids can replace α-tocopherol as an antioxidant. *FEBS Letters* **473(2)**, 145-148 (2000).
3. Tafazoli, S., Wright, J.S., and O'Brien, P.J. Prooxidant and antioxidant activity of vitamin E analogues and troglitazone. *Chem. Res. Toxicol.* **18(10)**, 1567-74 (2005).
4. Wells, S.R., Jennings, M.H., Rome, C., *et al.* α-, γ- and δ-tocopherols reduce inflammatory angiogenesis in human microvascular endothelial cells. *J. Nutr. Biochem.* **21(7)**, 589-97 (2010).
5. Bak, M.J., Gupta, S.D., Wahler, J., *et al.* Inhibitory effects of γ- and δ-tocopherols on estrogen-stimulated breast cancer *in vitro* and *in vivo*. *Cancer Prev. Res. (Phila)* **10(3)**, 188-197 (2017).

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