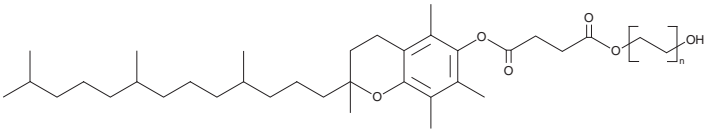
PRODUCT INFORMATION

Tocofersolan

Item No. 34661

CAS Registry No.:	9002-96-4
Formal Name:	α-[4-[[(2R)-3,4-dihydro-2,5,7,8-tetramethyl-2-[(4R,8R)-4,8,12-trimethyltridecyl]-2H-1-benzopyran-6-yl]oxy]-1,4-dioxobutyl]-ω-hydroxy-poly(oxy-1,2-ethanediyl)
Synonyms:	Tocophersolan, D-α-Tocopheryl Polyethylene Glycol Succinate, TPGS, TPGS 1000, VE-TPGS, Vitamin E TPGS
MF:	$(C_2H_4O)_nC_{33}H_{54}O_5$
FW:	574.8
Purity:	≥80%
UV/Vis.:	λ_{max}: 205, 284 nm
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

Tocofersolan is supplied as a solid. A stock solution may be made by dissolving the tocofersolan in the solvent of choice, which should be purged with an inert gas. Tocofersolan is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of tocofersolan in these solvents is approximately 15, 5, and 10 mg/ml, respectively.

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 tocofersolan can be prepared by directly dissolving the solid in aqueous buffers. The solubility of tocofersolan in PBS (pH 7.2) is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Tocofersolan is a nonionic surfactant and derivative of vitamin E.[1] It has a critical micelle concentration (CMC) of 0.02 mM at room temperature. Tocofersolan inhibits P-glycoprotein (P-gp), also known as multidrug resistance protein 1 (MDR1), substrate-induced ATPase activity in cell-free assays (IC_{50}s = 0.4-3.25 µM).[2] It reverses locomotor deficits induced by the polycyclic aromatic hydrocarbon benzo[a]pyrene in zebrafish larvae when used at a concentration of 1 µM.[3] Intravenous administration of nanocrystals containing tocofersolan (50 mg/kg) and paclitaxel (Item No. 10461) reduces tumor growth in an NCI/ADR-RES ovarian cancer mouse xenograft model.[4] Liposomes containing tocofersolan and DOTMA (Item No. 25926) and encapsulating anti-miR-21 accumulate in the liver, lung, and spleen and decrease lung fibrosis in a mouse model of pulmonary fibrosis induced by the glycopeptide antitumor antibiotic bleomycin (Item No. 13877).[5]

References

1. Sadoqi, M., Lau-Cam, C.A., and Wu, S.H. *J. Colloid Interface Sci.* **333(2)**, 585-589 (2009).
2. Collnot, E.-M., Baldes, C., Wempe, M.F., *et al. Mol. Pharm.* **4(3)**, 465-474 (2007).
3. Holloway, Z., Hawkey, A., Asrat, H., *et al. Neurotoxicology* **86**, 78-84 (2021).
4. Liu, Y., Huang, L., and Liu, F. *Mol. Pharm.* **7(3)**, 863-869 (2010).
5. Yan, L., Su, Y., Hsia, I., *et al. Mol. Ther. Nucleic Acids* **32**, 36-47 (2023).

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