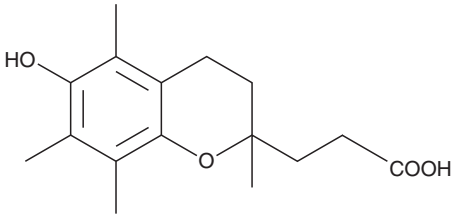
PRODUCT INFORMATION

α-CEHC

Item No. 10007705

CAS Registry No.:	4072-32-6
Formal Name:	3,4-dihydro-6-hydroxy-2,5,7,8-tetramethyl-2H-1-benzopyran-2-propanoic acid
MF:	$C_{16}H_{22}O_4$
FW:	278.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 206, 291 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

α-CEHC is supplied as a crystalline solid. A stock solution may be made by dissolving the α-CEHC in the solvent of choice, which should be purged with an inert gas. α-CEHC is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of α-CEHC in ethanol is approximately 10 mg/ml and approximately 20 mg/ml in DMSO and DMF.

α-CEHC is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, α-CEHC should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. α-CEHC has a solubility of approximately 0.25 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Molecules having vitamin E antioxidant activity include four tocopherols (α, β, δ, and γ) and four tocotrienols (α, β, δ, and γ).[1] α-Tocopherol is the major lipid soluble antioxidant *in vivo* and protects against lipid peroxidation.[2] α-CEHC is the major urinary metabolite of α-tocopherol following vitamin E supplementation.[3] The concentration of α-CEHC in human serum is in the range of 5-10 pmol/ml but increases significantly up to 200 pmol/ml upon supplementation with RRR-α-tocopherol. About one-third of the α-CEHC circulating in the blood is present as a glucuronide conjugate.[4] α-CEHC is excreted when a threshold concentration of 7-9 µmol α-tocopherol/g total lipid in plasma is exceeded. Therefore, excretion of α-CEHC may be considered to be a marker of optimum vitamin E intake.[5]

References

1. Kamal-Eldin, A. and Appelqvist, L.-Å. The chemistry and antioxidant properties of tocopherols and tocotrienols. *Lipids* **31**, 671-701 (1996).
2. Burton, G.W., Joyce, A., and Ingold, K.U. Is vitamin E the only lipid-soluble, chain-breaking antioxidant in human blood plasma and erythrocyte membranes? *Arch. Biochem. Biophys.* **221(1)**, 281-290 (1983).
3. Traber, M.G., Elsner, A., and Brigelius-Flohé, R. Synthetic as compared with natural vitamin E is preferentially excreted as α-CEHC in human urine: Studies using deuterated α-tocopheryl acetates. *FEBS Lett.* **437**, 145-148 (1998).
4. Stahl, W.S., Graf, P., Brigelius-Flohé, R., *et al.* Quantification of the α- and γ-tocopherol metabolites 2,5,7,8-tetramethyl-2-(2'-carboxyethyl)-6-hydroxychroman and 2,7,8-trimethyl-2-(2'-carboxyethyl)-6-hydroxychroman in human serum. *Anal. Biochem.* **275**, 254-259 (1999).
5. Schultz, M., Leist, M., Petrzika, M., *et al.* Novel urinary metabolite of α-tocopherol, 2,5,7,8-tetramethyl-2(2'-carboxyethyl)-6-hydroxychroman, as an indicator of an adequate vitamin E supply. *Am. J. Clin. Nutr.* **62(6)**, 1527S-34S (1995).

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