Data Sheet (Cat.No.TMA0003)

TargetMol
A DRUG SCREENING EXPERT

Trans-caffeic acid

Chemical Properties

CAS No.:	501-16-6
Formula:	C9H8O4
Molecular Weight:	180.2
Appearance:	N/A
Storage:	0-4℃ for short term (days to weeks), or -20℃ for long term (months).

Biological Description

Description	Trans-caffeic acid stearyl ester is posited to inhibit melanogenesis signaling while suppressing cAMP levels and, subsequently, MC1R, MITF, tyrosinase, TRP-2 and TRP-1 down-regulation, resulting in the suppression of tyrosinase activity, DOPA oxidase activity and melanin synthesis.
Targets(IC_{50})	cAMP: None Tyrosinase: None
In vitro	Trans-caffeic acid stearyl ester (TCASE) from the root cortex of Paeonia suffruticosa ANDREWS is a traditional medicinal herb that has several beneficial properties. However, the inhibitory effect of Trans-caffeic acid stearyl ester on melanogenesis has not been explored. METHODS AND RESULTS: In the cell viability assay, Trans-caffeic acid stearyl ester did not show a cytotoxic effect at a dose of 65 μM for 48 h in B16, HaCaT and Hs68 cells. Trans-caffeic acid stearyl ester considerably inhibits melanin synthesis, and reduces intracellular cyclic adenosine monophosphate (cAMP) levels, tyrosinase activity and L-3-(3,4-dihydroxyphenyl)-alanine (DOPA) oxidase activity in a concentration-dependent manner in the presence of α-melanocyte-stimulating hormone (α-MSH) in B16 cells, and the inhibition efficiency of Trans-caffeic acid stearyl ester exceeds that of ascorbic acid and arbutin. Trans-caffeic acid stearyl ester reduces melanocortin-1 receptor (MC1R), microphthalmia transcription factor (MITF), tyrosinase, tyrosinase-related protein-2 (TRP-2) and TRP-1 mRNA and protein levels in B16 cells. CONCLUSIONS:Based on the findings, Trans-caffeic acid stearyl ester is posited to inhibit melanogenesis signaling while suppressing cAMP levels and, subsequently, MC1R, MITF, tyrosinase, TRP-2 and TRP-1 down-regulation, resulting in the suppression of tyrosinase activity, DOPA oxidase activity and melanin synthesis.

Solubility Information

Solubility	< 1 mg/ml refers to the product slightly soluble or insoluble

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	5.549 mL	27.747 mL	55.494 mL
5 mM	1.110 mL	5.549 mL	11.099 mL
10 mM	0.555 mL	2.775 mL	5.549 mL
50 mM	0.111 mL	0.555 mL	1.110 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. The storage conditions and period of the stock solution: - 80 ℃ for 6 months; - 20 ℃ for 1 month. Please use it as soon as possible.

Reference

1. trans-Caffeic acid stearyl ester from Paeonia suffruticosa inhibits melanin synthesis by cAMP-mediating down-regulation of α-melanocyte-stimulating hormone-stimulated melanogenesis signaling pathway in B16 cells. Biol Pharm Bull. 2012;35(12):2198-203.
2. Photochemical and photocatalytic isomerization of trans-caffeic acid and cyclization of cis-caffeic acid to esculetin. Applied Catalysis B Environmental , 2016 , 182 :347-355.

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