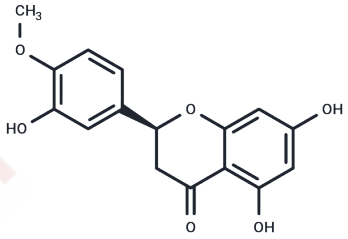
Data Sheet (Cat.No.T2565)

TargetMol

Hesperetin

Chemical Properties



CAS No. : 520-33-2

Formula: C16H14O6

Molecular Weight: 302.28

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Hesperetin belongs to the flavanone class of flavonoids. Hesperetin, in the form of its glycoside hesperidin, is the predominant flavonoid in lemons and oranges.
Targets(IC50)	Apoptosis,5-HT Receptor,Autophagy,p38 MAPK,TGF-beta/Smad
In vitro	Hesperetin has the retention of antioxidant potential in self nano-emulsifying drug delivery system[1]. Hesperetin and NGR display broad-spectrum inhibition against human UGTs. In addition, Hesperetin exhibits strong inhibitory effects on UGT1A1, 1A3 and 1A9 (both IC50 and Ki values lower than 10 μM) and moderately inhibits UGT1A4, UGT1A7, UGT1A8 (IC50 values 29.68-63.87 μM)[2]. Hesperetin interacts with different types of proteins involving hydrogen bonds, pi-pi effects, pi-cation bonding and pi-sigma interactions with varying binding energies. Hesperetin exhibits drug-like properties which indicate its potential as a therapeutic option for CHIKV infection[3]. Hesperetin dose-dependently reduces GCDCA-induced caspase-3 activity in cultured primary rat hepatocytes. Hesperetin also dose-dependently reduces CM-induced Nos2 (iNOS) expression in hepatocytes. Interestingly, hesperetin-induced expression of the antioxidant gene haem oxygenase 1 (HO-1) about fourfold compared with cytokine mixture alone[5].
In vivo	Pre-administration of Hesperetin (40 mg/kg b.w., oral) significantly reduces Cd-induced oxidative stress and mitochondrial dysfunction in rats' brains, while restoring antioxidant activity and membrane-bound enzyme functions, and lessening apoptosis [4]. At a dose of 200 mg/kg, Hesperetin diminishes Con A-induced hepatocyte apoptosis and hepatic Nos2 (iNOS) expression in mice, alongside reducing the presence of apoptotic bodies, hydropic degeneration, nuclear fragments, autolysis, and hemorrhage. Moreover, Hesperetin co-treatment notably lowers the infiltration of leukocytes in the liver tissue of mice suffering from D-GalN/LPS-induced fulminant hepatitis, demonstrating its protective effect in a murine model[5].
Kinase Assay	First, 0.5 mL tissue homogenate is diluted with 1 mL water. Then, to this mixture, 2.5 mL ethanol and 1.5 mL chloroform (all reagents chilled) are added and shaken for 1 min at 4°C, then centrifuged. The enzyme activity in the supernatant is determined. The assay mixture contained 1.2 mL sodium pyrophosphate buffer (0.025 M, pH 8.3), 0.1 mL 186 mM phenazine methosulfate (PMS), 0.3 mL 30 mM Nitroblue tetrazolium (NBT), and 0.2 mL of nicotinamide adenine dinucleotide (NADH), and appropriately diluted enzyme preparation and water in a total volume of 3 mL. Reaction is initiated by the addition of NADH. After incubation at 30°C for 90 min, the reaction is stopped by the addition of 1

mL glacial acetic acid. The reaction mixture is stirred vigorously and shaken with 4 mL n-butanol. The intensity of the chromogen in the butanol layer is measured at 560 nm against a butanol blank. A system without enzyme served as control. One unit of enzyme activity is defined as 50% inhibition of NBT reduction in 1 min under the assay conditions.

Solubility Information

Solubility	Ethanol: < 1 mg/mL (insoluble or slightly soluble), DMSO: 45 mg/mL (148.87 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble), (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.3082 mL	16.541 mL	33.0819 mL
5 mM	0.6616 mL	3.3082 mL	6.6164 mL
10 mM	0.3308 mL	1.6541 mL	3.3082 mL
50 mM	0.0662 mL	0.3308 mL	0.6616 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Arya A, et al. Bioflavonoid hesperetin overcome bicalutamide induced toxicity by co-delivery in novel SNEDDS formulations: Optimization, in vivo evaluation and uptake mechanism. Mater Sci Eng C Mater Biol Appl. 2017 Feb 1;71:954-964.

Yin S J, Chen H, Wang S, et al.Preparation of core-shell MOF@ MOF nanoparticle as matrix for the analysis of rhubarb anthraquinones in plasma by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry.Heliyon.2023

Liu D, et al. Inhibitory Effect of Hesperetin and Naringenin on Human UDP-Glucuronosyltransferase Enzymes: Implications for Herb-Drug Interactions. Biol Pharm Bull. 2016;39(12):2052-2059.

Oo A, et al. In silico study on anti-Chikungunya virus activity of hesperetin. PeerJ. 2016 Oct 26;4:e2602. eCollection 2016.

Shagirtha K, et al. Neuroprotective efficacy of hesperetin against cadmium induced oxidative stress in the brain of rats. Toxicol Ind Health. 2016 Nov 1. pii: 0748233716665301.

Bai X, et al. The protective effect of the natural compound hesperetin against fulminant hepatitis in vivo and in vitro. Br J Pharmacol. 2017 Jan;174(1):41-56.

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