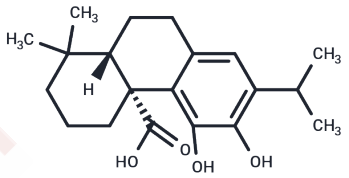
Data Sheet (Cat.No.T4957)

TargetMol

Carnosic acid

Chemical Properties



CAS No. : 3650-09-7

Formula: C20H28O4

Molecular Weight: 332.43

Storage: Keep away from direct sunlight,Keep away from moisture
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Carnosic acid is a lipid absorption inhibitor, endowed with antioxidative, antimicrobial, photoprotective potential, and antiproliferative properties.
Targets(IC50)	Apoptosis,Antibacterial,ROS
In vitro	ARPE-19 cells were pre-treated with 10 μM carnosic acid for 24 h followed by treatment with acrylamide (0.7 or 1 mM) for 24 h. ARPE-19 cells pre-treated with 10 μM carnosic acid showed significantly increased cell viability and decreased cell death rate when compared to ARPE-19 cells treated with acrylamide alone [1]. A pretreatment of human neuroblastoma SH-SY5Y cells with carnosic acid at 1 μM for 12 h prevented the hydrogen peroxide (H2O2)-induced impairment of the TCA enzymes (aconitase, α-ketoglutarate dehydrogenase (α-KGDH), succinate dehydrogenase (SDH)) and abolished the inhibition of the complexes I and V and restored the levels of ATP by a mechanism associated with Nrf2 [2].
In vivo	Carnosic acid significantly down-regulated fasting blood glucose, glucose level in oral glucose tolerance test (OGTT) and insulin tolerance test (ITT), ameliorated CIA-induced bone loss, and reduced pro-inflammatory cytokines and reactive oxygen species (ROS) in db/db mice with arthritis induced by CIA [3].
Cell Research	Human dopaminergic neuroblastoma SH-SY5Y cells were cultured in Dulbecco's modified Eagle's medium (DMEM)/F-12 HAM nutrient medium (1:1 mixture; supplemented with 10% fetal bovine serum (FBS), 2 mM L-glutamine, penicillin (1000 units/mL), streptomycin (1000 μg/mL), and amphotericin B (2.5 μg/mL)) in a 5% CO2 humidified incubator at 37 °C. SH-SY5Y cells were cultured until a confluence of 80–90% was achieved and then trypsinized. H2O2 was utilized at 300 μM for different periods of incubation according to each specific assay. A pretreatment with CA (dissolved in DMSO) at 1 μM for 12 h was performed in order to test the ability of this diterpene in preventing the deleterious effects triggered by H2O2 in SH-SY5Y cells [2].
Animal Research	Male C57BL/KsJ-db/db mice were given an intradermal injection of 100 μg of chicken type II collagen emulsified in complete Freund's adjuvant (1:1, w/v) into the base of the tail. 18 days after primary immunization, all mice showed signs of arthritis, and a booster, which consisted of 100 μg of chicken type II collagen emulsified in incomplete Freund's adjuvant (IFA; 1:1, v/v), was injected intradermally. All mice were divided into

Animal Research	7 groups; normal (Nor), db/db, db/db/CIA, and db/db/CIA with CA treatment. To investigate the effects of Carnosic acid (CA) on the development of arthritis, db/db mice and db/db/CIA mice were treated with 30 mg/kg body weight CA (CAL) and 60 mg/kg body weight CA (CAH) seven times per week for 4 weeks intraperitoneally after the booster injection. CA was prepared as 10 mmol/L stock solutions in DMSO [3].

Solubility Information

Solubility	DMSO: 247.5 mg/mL (744.52 mM),Sonication is recommended. H2O: Insoluble, (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 4 mg/mL (12.03 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.0082 mL	15.0408 mL	30.0815 mL
5 mM	0.6016 mL	3.0082 mL	6.0163 mL
10 mM	0.3008 mL	1.5041 mL	3.0082 mL
50 mM	0.0602 mL	0.3008 mL	0.6016 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.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Albalawi A, et al. Protective effect of carnosic acid against acrylamide-induced toxicity in RPE cells. Food Chem Toxicol. 2017 Oct;108(Pt B):543-553.

Zhang H, Cai J, Li C, et al.Wogonin inhibits latent HIV-1 reactivation by downregulating histone crotonylation. Phytomedicine.2023: 154855.

de Oliveira MR, et al. Carnosic Acid Suppresses the H2O2-Induced Mitochondria-Related Bioenergetics Disturbances and Redox Impairment in SH-SY5Y Cells: Role for Nrf2. Mol Neurobiol. 2018 Feb;55(2):968-979.

Xia G, et al. Carnosic acid (CA) attenuates collagen-induced arthritis in db/db mice via inflammation suppression by regulating ROS-dependent p38 pathway. Free Radic Biol Med. 2017 Jul;108:418-432.