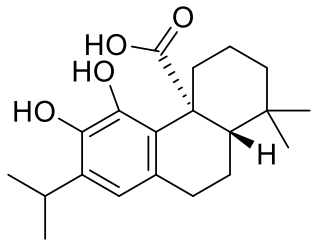
Product data sheet

MedKoo Cat#: 600120 Name: Carnosic Acid CAS#: 3650-09-7 Chemical Formula: $C_{20}H_{28}O_4$ Exact Mass: 332.19876 Molecular Weight: 332.43	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Carnosic acid is a natural benzenediol abietane diterpene found in rosemary (Rosmarinus officinalis) and common sage (Salvia officinalis). Dried leaves of rosemary or sage contain 1.5 to 2.5% carnosic acid. Carnosic acid has medicinal properties, is a potent antioxidant and protects skin cells against UV-A radiation (photoprotection). Studies in animals have also found a protection against carcinogens. Carnosic acid is used as a preservative or antioxidant in food and nonfood products (e.g. toothpaste, mouthwash and chewing gum -in which it has an antimicrobial effect on the microbes responsible for bad breath- or skin care products).

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	66	198.54

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.01 mL	15.04 mL	30.08 mL
5 mM	0.60 mL	3.01 mL	6.02 mL
10 mM	0.30 mL	1.50 mL	3.01 mL
50 mM	0.06 mL	0.30 mL	0.60 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Barni MV, Carlini MJ, Cafferata EG, Puricelli L, Moreno S. Carnosic acid inhibits the proliferation and migration capacity of human colorectal cancer cells. Oncol Rep. 2012 Apr;27(4):1041-8. doi: 10.3892/or.2012.1630. Epub 2012 Jan 11. PMID: 22246562; PMCID: PMC3583532.

2. de Oliveira MR. Carnosic Acid as a Promising Agent in Protecting Mitochondria of Brain Cells. Mol Neurobiol. 2018 Aug;55(8):6687-6699. doi: 10.1007/s12035-017-0842-6. Epub 2018 Jan 15. PMID: 29335845.

In vivo study

1. Xia G, Wang X, Sun H, Qin Y, Fu M. 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. doi: 10.1016/j.freeradbiomed.2017.03.023. Epub 2017 Mar 23. PMID: 28343998.

7. Bioactivity
Biological target:

Product data sheet

Carnosic acid (Salvin) is a phenolic diterpene, endowed with antioxidative and antimicrobial properties.

In vitro activity

The objective of this study was to examine whether carnosic acid (CA), the main antioxidant compound of Rosmarinus officinalis L., would inhibit the cell viability of three CRC cell lines: Caco-2, HT29 and LoVo in a dose-dependent manner, with IC_{50} values in the range of 24-96 μM. CA induced cell death by apoptosis in Caco-2 line after 24 h of treatment and inhibited cell adhesion and migration, possibly by reducing the activity of secreted proteases such as urokinase plasminogen activator (uPA) and metalloproteinases (MMPs). These effects may be associated through a mechanism involving the inhibition of the COX-2 pathway, because we have determined that CA downregulates the expression of COX-2 in Caco-2 cells at both the mRNA and protein levels. Therefore, CA modulates different targets involved in the development of CRC. These findings indicate that carnosic acid may have anticancer activity and may be useful as a novel chemotherapeutic agent.

Reference: Oncol Rep. 2012 Apr;27(4):1041-8. doi: 10.3892/or.2012.1630.
https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/22246562/

In vivo activity

Carnosic acid (CA) was used to treat collagen-induced arthritis (CIA)-induced db/db mice. Blood glucose, oral glucose tolerance test (OGTT) and insulin tolerance test (ITT) were investigated to explore insulin resistance. CA significantly down-regulated fasting blood glucose, glucose level in OGTT and 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.

Reference: Free Radic Biol Med. 2017 Jul;108:418-432. https://linkinghub.elsevier.com/retrieve/pii/S0891-5849(17)30172-7

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.