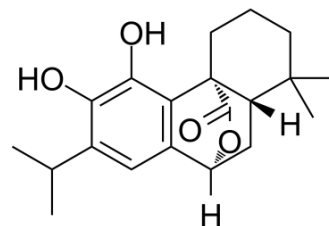


Carnosol

Cat. No.:	HY-N0643
CAS No.:	5957-80-2
Molecular Formula:	C ₂₀ H ₂₆ O ₄
Molecular Weight:	330.42
Target:	Ribosomal S6 Kinase (RSK); Keap1-Nrf2
Pathway:	MAPK/ERK Pathway; NF-κB
Storage:	-20°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 125 mg/mL (378.31 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	3.0265 mL	15.1323 mL	30.2645 mL
	5 mM	0.6053 mL	3.0265 mL	6.0529 mL
	10 mM	0.3026 mL	1.5132 mL	3.0265 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.08 mg/mL (6.30 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.08 mg/mL (6.30 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.08 mg/mL (6.30 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Carnosol is a potent Ribosomal S6 Kinase (RSK2) inhibitor that could be useful for treating gastric cancer, with an IC₅₀ of ~5.5 μM^[1]. Carnosol, a Nrf2 activator, increases the nuclear levels of Nrf2 and can promote the expression of heme oxygenase 1 (HMOX1)^{[2][3]}.

IC₅₀ & Target

RSK2 ~5.5 μM (IC ₅₀)	Nrf2
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In Vitro

It is showed that carnosol has no cytotoxic effects on GES1 cells and 10 μM carnosol strongly suppresses RSK2 activity, but

has little effect on any other kinase. Carnosol exerts strong dose-dependent inhibitory effects against RSK2 autophosphorylation and phosphorylation of its substrate ATF1^[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Results indicate that Carnosol significantly decreases the volume and weight of gastric tumors relative to the vehicle-treated group. Additionally, mice tolerate treatment with carnosol without significant loss of body weight similar to the vehicle-treated group. The phosphorylation of CREB, a direct downstream protein of RSK2, is strongly inhibited in the carnosol-treated group but the expression of total CREB is relatively unchanged^[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration ^[1]

Mice^[1]
Mice are orally administered Carnosol at 100 mg/kg or vehicle 5 times a week over a period of 31 days^[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Int Immunopharmacol. 2021 Jan 7;92:107352.

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REFERENCES

- [1]. Wang L, et al. Carnosol suppresses patient-derived gastric tumor growth by targeting RSK2. *Oncotarget*. 2018 Feb 6;9(76):34200-34212.
- [2]. Li X, et al. Carnosol as a Nrf2 Activator Improves Endothelial Barrier Function Through Antioxidative Mechanisms. *Int J Mol Sci*. 2019;20(4):880. Published 2019 Feb 18.
- [3]. Martin D, et al. Regulation of heme oxygenase-1 expression through the phosphatidylinositol 3-kinase/Akt pathway and the Nrf2 transcription factor in response to the antioxidant phytochemical carnosol. *J Biol Chem*. 2004;279(10):8919-8929.

Caution: Product has not been fully validated for medical applications. For research use only.

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