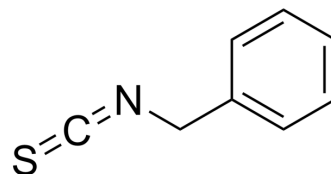


Benzyl isothiocyanate

Cat. No.:	HY-77813
CAS No.:	622-78-6
Molecular Formula:	C ₈ H ₇ NS
Molecular Weight:	149.21
Target:	Bacterial; Apoptosis; Antibiotic; Parasite; Autophagy; Reactive Oxygen Species
Pathway:	Anti-infection; Apoptosis; Autophagy; Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB
Storage:	4°C, stored under nitrogen * In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 110 mg/mL (737.22 mM; Need ultrasonic)
H₂O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	6.7020 mL	33.5098 mL	67.0196 mL
	5 mM	1.3404 mL	6.7020 mL	13.4039 mL
	10 mM	0.6702 mL	3.3510 mL	6.7020 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: 2.75 mg/mL (18.43 mM); Suspended solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: 2.75 mg/mL (18.43 mM); Suspended solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.75 mg/mL (18.43 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Benzyl isothiocyanate is an orally available isothiocyanate with bactericidal, anticancer, antiangiogenic and anthelmintic activities. Benzyl isothiocyanate exerts anticancer functions by regulating multiple signaling pathways, including apoptosis, cell proliferation, cell cycle arrest, metastasis, angiogenesis, and autophagy. In addition, Benzyl isothiocyanate can enhance muscle insulin sensitivity to improve obesity-induced hyperglycemia^{[1][2][3][4][5][6][7][8][9]}.

In Vitro

Benzyl isothiocyanate (1-5 μM; 24 and 48 h) significantly inhibits the migration, mobilization and invasion of B16F10 cells^[2]. Benzyl isothiocyanate shows some cytotoxicity to *Caenorhabditis elegans*, with LC₉₀ values ranging from 15-45 μM^[5].

Benzyl isothiocyanate shows some cytotoxicity to human ovarian tumor cell lines CH1, 41M and SKOV-3, mouse leukemia cell line L-1210 and mouse solid tumor cell line PC6/sens, with IC₅₀ values of 2.2, 7.2, 6.1, 2.0 and 2.2 μM, respectively^[7]. Benzyl isothiocyanate inhibits the growth of HeLa cell lines in a dose-dependent manner with an IC₅₀ value of 1.9 μM^[7]. Benzyl isothiocyanate (5 μM; 16 h) promotes insulin-dependent glucose uptake in PA-treated C2C12 myotubes, upregulates antioxidant defense in C2C12 myotubes and inhibits PA-induced ROS generation^[8]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis^[2]

Cell Line:	B16F10 cells
Concentration:	1, 2.5 and 5 μM
Incubation Time:	24 and 48 h
Result:	Increased the expression of MAPK signaling-related proteins and inhibited the expression of RhoA, Ras and sod-1.

In Vivo

Benzyl isothiocyanate (0.05 % and 0.1% BITC in the diet; p.o.; 18 weeks) reduces the final body weight of C57BL/6J mice fed a HFD by 10 % and 19.1 %, respectively, in a dose-dependent manner^[8].

Benzyl isothiocyanate (fed a basal diet containing 100 ppm Benzyl isothiocyanate; p.o.; 53 weeks) reduces the incidence of N-Nitrosodiethylamine (HY-N7434)-induced liver tumors in male ACI/N rats^[9].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male ACI/N rats were injected intraperitoneally with a single dose of 200 mg/kg DEN before administration ^[9] .
Dosage:	100 ppm
Administration:	Mixed in the basic diet for daily feeding
Result:	Reduce liver weight and relative liver weight in mice.

Animal Model:	Male 4-week-old C57BL/6J mice fed a high-calorie diet ^[8]
Dosage:	Add 0.05% or 0.1% BITC to high-calorie diets
Administration:	Free feeding for 18 weeks
Result:	Reduced plasma total cholesterol, non-esterified fatty acids, glucose levels and HOMA-IR in a dose-dependent manner.

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

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