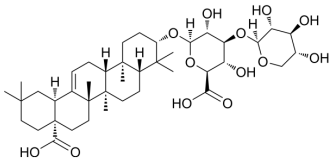
Momordin Ic

Cat. No.:	HY-N0330
CAS No.:	96990-18-0
Molecular Formula:	$C_{41}H_{64}O_{13}$
Molecular Weight:	764.94
Target:	Apoptosis; Autophagy; PI3K; c-Myc
Pathway:	Apoptosis; Autophagy; PI3K/Akt/mTOR
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (130.73 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.3073 mL	6.5365 mL	13.0729 mL
	5 mM	0.2615 mL	1.3073 mL	2.6146 mL
	10 mM	0.1307 mL	0.6536 mL	1.3073 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 6.25 mg/mL (8.17 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (3.27 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (3.27 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Momordin Ic is an orally active triterpenoid saponin that can be isolated from Kochia scoparia. It is also a SUMO specific protease 1 (SENP1) inhibitor, SENP1/c-MYC signaling pathway inhibitor, and apoptosis inducer. Momordin Ic induces autophagy and apoptosis in liver cancer cells through the PI3K/Akt and MAPK signaling pathways mediated by reactive oxygen species. Momordin Ic has the ability to control glucose induced blood glucose elevation, inhibit gastric emptying, resist rheumatoid arthritis, reduce CCl_4 (HY-Y0298) induced hepatotoxicity and anti-tumor activity[1][2].

In Vitro

Momordin Ic (0-20 μM, 48 h) relies on cholesterol and ganglioside GM1 to enhance the toxicity of recombinant protein MAP30 in breast cancer cells[2].

Momordin Ic (10 μM, 24 h) induces colon cancer cell cycle arrest and apoptosis by inhibiting the SENP1/c-MYC signaling

pathway[3].

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

Cell Viability Assay[1][2].

Cell Line:	HepG2 cell; MDA-MB-231, MCF-7, HepG2, H460, A549, HeLa cells
Concentration:	0-20 μM
Incubation Time:	4 h; 48 h
Result:	Inhibited growth in HepG2 cells; Enhanced the cytotoxicity of MAP30 to breast cancer cells.

Apoptosis Analysis[1].

Cell Line:	HepG2 cell
Concentration:	0-15 μM
Incubation Time:	4 h
Result:	Reduced the protein levels of caspase-3 and Bcl-2, and increased the protein levels of cytochrome c and Bax in the cytoplasmicsol.

Western Blot Analysis[3].

Cell Line:	HCT-8 cell, HCT-116 cells
Concentration:	10 μM
Incubation Time:	24 h
Result:	Reduced the level of c-Myc protein.

In Vivo

Momordin Ic (12.5, 25, 50 mg/kg, p.o.) accelerates gastrointestinal transport and inhibits gastric emptying in mice by stimulating the synthesis of serotonin (5-HT)[4].

Momordin Ic (10 mg/kg, p.o.) can inhibit ethanol induced gastric mucosal lesions in rats[5].

Momordin Ic (30 mg/kg, once a day for 14 days, p.o.) can reduce CCl_4-induced hepatotoxicity in rats[6].

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

Animal Model:	Male ddY mice[4].
Dosage:	12.5, 25, 50 mg/kg
Administration:	Oral gavage (p.o.)
Result:	Accelerated gastrointestinal transit in fasted mice.

Animal Model:	Male Sprague-Dawley rat[5].
Dosage:	10 mg/kg
Administration:	Oral gavage (p.o.)
Result:	Reduced the length of the lesions.

Animal Model:	Male Sprague–Dawley rat[6].
Dosage:	30 mg/kg
Administration:	Oral gavage (p.o.), once a day for 14 days
Result:	Reduced serum transaminase, lactic dehydrogenase, and γ-glutamyltransferase levels in the CCl_4-treated rats.

CUSTOMER VALIDATION

- J Pharmacol Sci. 2021 May 11.
- J Pharm Pharmacol. 2022 May 30;rgac033.

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REFERENCES

[1]. Mi Y, et al. Momordin Ic couples apoptosis with autophagy in human hepatoblastoma cancer cells by reactive oxygen species (ROS)-mediated PI3K/Akt and MAPK signaling pathways. Free Radic Biol Med. 2016 Jan;90:230-42.

[2]. Wang W, et al. Cytotoxic effects of recombinant proteins enhanced by momordin Ic are dependent on cholesterol and ganglioside GM1. Toxicon. 2023 Jun 15;229:107129.

[3]. Xianjun F, et al. Momordin Ic induces G0/1 phase arrest and apoptosis in colon cancer cells by suppressing SENP1/c-MYC signaling pathway. J Pharmacol Sci. 2021 Aug;146(4):249-258.

[4]. Li Y, et al. Acceleration of gastrointestinal transit by momordin Ic in mice: possible involvement of 5-hydroxytryptamine, 5-HT(2) receptors and prostaglandins. Eur J Pharmacol. 2000 Mar 24;392(1-2):71-7.

[5]. Matsuda H, et al. Roles of capsaicin-sensitive sensory nerves, endogenous nitric oxide, sulfhydryls, and prostaglandins in gastroprotection by momordin Ic, an oleanolic acid oligoglycoside, on ethanol-induced gastric mucosal lesions in rats. Life Sci. 1999;65(2):PL27-32.

[6]. Kim NY, et al. Momordin Ic and oleanolic acid from Kochiae Fructus reduce carbon tetrachloride-induced hepatotoxicity in rats. J Med Food. 2005 Summer;8(2):177-83.

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