Solamargine

Cat. No.: HY-N0069

CAS No.: 20311-51-7

Molecular Formula: $C_{45}H_{73}NO_{15}$

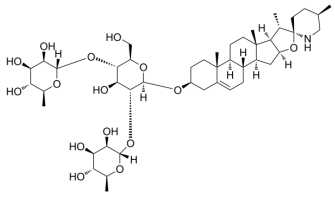
Molecular Weight: 868.06

Target: P-glycoprotein; Apoptosis; P-glycoprotein

Pathway: Membrane Transporter/Ion Channel; Apoptosis

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (115.20 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.1520 mL	5.7600 mL	11.5199 mL
	5 mM	0.2304 mL	1.1520 mL	2.3040 mL
	10 mM	0.1152 mL	0.5760 mL	1.1520 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: ≥ 2.5 mg/mL (2.88 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (2.88 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (2.88 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Solamargine, a derivative from the steroidal solasodine in Solanum species, exhibits anticancer activities in numerous types of cancer. Solamargine induces non-selective cytotoxicity and P-glycoprotein inhibition. Solamargine significantly inhibits migration and invasion of HepG2 cells by down-regulating MMP-2 and MMP-9 expression and activity[1][2].

In Vitro

Solamargine (15 μg/ml; 72 hours) predominantly stimulates the cells of the G2/M phase to apoptosis[3].
Solamargine (72 hours) dramatically inhibits the proliferation of SMMC-7721 and HepG2 cells in a dose- and time-dependent manner. The IC_{50}s are 9.21 and 19.88 μg/ml, respectively[3].

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

Cell Viability Assay[3]

Cell Line:	SMMC-7721cells
Concentration:	15 μg/ml
Incubation Time:	72 hours
Result:	Displayed a significant increase of sub-G1.

In Vivo

Solamargine (10 mg/kg; intragastric administration; once daily for 8 days) exhibits an antitumor effect and promotes the apoptosis of GC in vivo[4].

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

Animal Model:	Female specific pathogen-free BALB/c nude mice weighing 18-20 g (6-8-weeks-old)[4]
Dosage:	10 mg/kg
Administration:	Intragastric administration; once daily for 8 days
Result:	Tumor growth was significantly inhibited .

CUSTOMER VALIDATION

- Food Chem. 2020 May 15;312:126030.
- Cancers. 2019 Mar 12;11(3):353.
- Int J Oncol. 2019 Mar;54(3):905-915.
- Int J Oncol. 2019 May;54(5):1545-1554.
- J Sci Food Agric. 2019 May;99(7):3578-3587.

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REFERENCES

[1]. Burger T, et al. Solamargine, a bioactive steroidal alkaloid isolated from Solanum aculeastrum induces non-selective cytotoxicity and P-glycoprotein inhibition. BMC Complement Altern Med. 2018 May 2;18(1):137.

[2]. Sani IK, et al. Solamargine inhibits migration and invasion of human hepatocellular carcinoma cells through down-regulation of matrix metalloproteinases 2 and 9 expression and activity. Toxicol In Vitro. 2015 Aug;29(5):893-900.

[3]. Ding X, et al. Induction of apoptosis in human hepatoma SMMC-7721 cells by solamargine from Solanum nigrum L. J Ethnopharmacol. 2012 Jan 31;139(2):599-604.

[4]. Fu R, et al. Solamargine inhibits gastric cancer progression by regulating the expression of lncNEAT1_2 via the MAPK signaling pathway. Int J Oncol. 2019 May;54(5):1545-1554.

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