Sinapinic acid

Cat. No.: HY-W009732

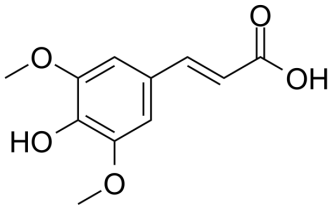
CAS No.: 530-59-6

Molecular Formula: $C_{11}H_{12}O_5$

Molecular Weight: 224.21

Target: HDAC; Angiotensin-converting Enzyme (ACE); Reactive Oxygen Species; Apoptosis

Pathway: Cell Cycle/DNA Damage; Epigenetics; Metabolic Enzyme/Protease; Immunology/Inflammation; NF-κB; Apoptosis



Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month

SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (223.01 mM; Need ultrasonic)
Ethanol : 25 mg/mL (111.50 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	4.4601 mL	22.3005 mL	44.6010 mL
	5 mM	0.8920 mL	4.4601 mL	8.9202 mL
	10 mM	0.4460 mL	2.2301 mL	4.4601 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 (11.15 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (11.15 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (11.15 mM); Clear solution
4. Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (11.15 mM); Clear solution
5. Add each solvent one by one: 10% EtOH >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (11.15 mM); Clear solution
6. Add each solvent one by one: 10% EtOH >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (11.15 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Sinapinic acid (Sinapic acid) is a phenolic compound isolated from Hydnophytum formicarum Jack. Rhizome, acts as an inhibitor of HDAC, with an IC_{50} of 2.27 mM[1], and also inhibits ACE-I activity[2]. Sinapinic acid posssess potent anti-tumor activity, induces apoptosis of tumor cells[1]. Sinapinic acid shows antioxidant and antidiabetic activities[2]. Sinapinic acid reduces total cholesterol, triglyceride, and HOMA-IR index, and also normalizes some serum parameters of antioxidative abilities and oxidative damage in ovariectomized rats[3].	
IC_{50} & Target	HDAC 2.27 mM (IC_{50})	ACE-I
In Vitro	Sinapinic acid acts as an inhibitor of HDAC, with an IC_{50} of 2.27 mM[1]. Sinapinic acid also inhibits ACE-I activity[2]. Sinapinic acid inhibits HDAC activity in HeLa cells, suppresses the growth of HeLa and HT29 cells with IC_{50}s of 0.91 ± 0.02 mM and 1.6 ± 0.02 mM at 72 h, respectively, induces apoptosis of these cancer cells[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.	
In Vivo	Sinapinic acid (5 or 25 mg/kg, p.o. daily for 4 weeks) increases the serum estradiol concentration; decreases insulin resistance and the triglyceride and total cholesterol concentrations; and favorably affects the parameters of antioxidant abilities (reduces glutathione, superoxide dismutase) and oxidative damage in rats[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.	

CUSTOMER VALIDATION

- Am J Chin Med. 2022 Oct 12;1-13.
- Drug Dev Res. 2021 Dec 3.
- Research Square Preprint. 2022 Feb.

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REFERENCES

[1]. Senawong T, et al. Histone deacetylase (HDAC) inhibitory and antiproliferative activities of phenolic-rich extracts derived from the rhizome of Hydnophytum formicarum Jack.: sinapinic acid acts as HDAC inhibitor. BMC Complement Altern Med. 2013 Sep 22;13:

[2]. Quinn L, et al. Extraction and Quantification of Sinapinic Acid from Irish Rapeseed Meal and Assessment of Angiotensin-I Converting Enzyme (ACE-I) Inhibitory Activity. J Agric Food Chem. 2017 Aug 16;65(32):6886-6892.

[3]. Zych M, et al. The Effects of Sinapic Acid on the Development of Metabolic Disorders Induced by Estrogen Deficiency in Rats. Oxid Med Cell Longev. 2018 Jun 4;2018:9274246.

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