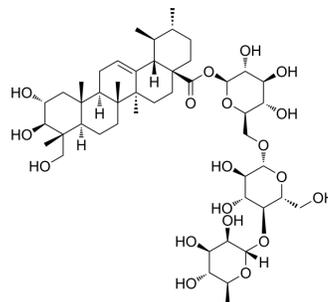


Asiaticoside

Cat. No.:	HY-N0439												
CAS No.:	16830-15-2												
Molecular Formula:	C ₄₈ H ₇₈ O ₁₉												
Molecular Weight:	959.12												
Target:	TGF-beta/Smad; Reactive Oxygen Species; Apoptosis; Endogenous Metabolite												
Pathway:	Stem Cell/Wnt; TGF-beta/Smad; Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB; Apoptosis												
Storage:	<table border="0"> <tr> <td>Powder</td> <td>-20°C</td> <td>3 years</td> </tr> <tr> <td></td> <td>4°C</td> <td>2 years</td> </tr> <tr> <td>In solvent</td> <td>-80°C</td> <td>2 years</td> </tr> <tr> <td></td> <td>-20°C</td> <td>1 year</td> </tr> </table>	Powder	-20°C	3 years		4°C	2 years	In solvent	-80°C	2 years		-20°C	1 year
Powder	-20°C	3 years											
	4°C	2 years											
In solvent	-80°C	2 years											
	-20°C	1 year											



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (52.13 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	1.0426 mL	5.2131 mL	10.4262 mL
	5 mM	0.2085 mL	1.0426 mL	2.0852 mL
	10 mM	0.1043 mL	0.5213 mL	1.0426 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: ≥ 2.5 mg/mL (2.61 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (2.61 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (2.61 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (2.61 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (2.61 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (2.61 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (2.61 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (2.61 mM); Clear solution

9. Add each solvent one by one: 5% DMSO >> 40% PEG300 >> 5% Tween-80 >> 50% saline
Solubility: \geq 2.5 mg/mL (2.61 mM); Clear solution
10. Add each solvent one by one: 5% DMSO >> 95% (20% SBE- β -CD in saline)
Solubility: \geq 2.5 mg/mL (2.61 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Asiaticoside, a trisaccharide triterpene from <i>Centella asiatica</i> , suppresses TGF- β /Smad signaling through inducing Smad7 and inhibiting TGF- β RI and TGF- β RII in keloid fibroblasts; Asiaticoside shows antioxidant, anti-inflammatory, and anti-ulcer properties.
IC₅₀ & Target	TGF-beta/Smad ^[1]
In Vitro	Asiaticoside (0, 100, 250, and 500 mg/L) dose-dependently inhibits keloid fibroblasts proliferation. Asiaticoside (100, 250, and 500 mg/L) decreases the expression of collagen protein and mRNA, reduces the expression of TGF- β RI, TGF- β RII protein, and mRNA, increases the expression of Smad7, but does not affect Smad2, Smad3, Smad4, phosphorylated Smad2, and phosphorylated Smad3 in keloid fibroblasts ^[1] . Asiaticoside (12.5 and 50, and 25 and 50 μ g/mL) prevents endothelial cells from hypoxia-induced inhibition of cell viability and NO production. Asiaticoside (50 μ g/mL) also protects endothelial cells from hypoxia-induced apoptosis and upregulates and phosphorylation of AKT/eNOS in hypoxia-exposed HPAECs ^[2] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Asiaticoside (50 mg/kg daily) blocks the development of hypoxic pulmonary hypertension (PH), cardiovascular remodeling and endothelial cell injury in rats with pulmonary hypertension ^[2] . Asiaticoside (5, 15 or 45 mg/kg, p.o.) improves the learning and memory deficit, protects hippocampi against the impairment, decreases A β deposits in the hippocampus, and ameliorates impaired subcellular structure in rats treated with A β oligomers ^[3] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay ^[1]	Cells are seeded at a density of $2-9 \times 10^4$ cells/mL into 24-well plates for cell viability, 60-mm plates for RNA and protein analysis in DMEM containing 10% FBS (DMEM/10% FBS). After 24 h, medium is removed and cells are placed in serum-free DMEM. After 48 h, different concentrations of Asiaticoside in DMEM/10% FBS are added simultaneously to cells. Control cells are grown in DMEM/10% FBS without the addition of Asiaticoside. At different time points, the fibroblasts are harvested for analysis ^[1] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration ^[3]	Rats ^[3] Sprague-Dawley rats are used to establish the Alzheimer's disease (AD) model. Asiaticoside is administered orally at 5, 15 or 45 mg/kg body weight per day for 7 days. The learning and memory function of the rats are evaluated by the MWM test 7 days after surgery. The swimming pool (180 cm in diameter) is maintained at 22-24°C, and divided into four quadrants with equal size. A hidden platform is placed in the center of one quadrant. Each of the cardinal points of these four quadrants is randomly selected as the start location. On the pre-test day, rats are allowed to swim freely for 120 sec. During the test (days 1-4), each rat is subjected to 8 trials each day. The trial begins when a rat is placed in the pool, and ended when the rat finds the platform. The escape latency is recorded. If a rat fails to find the platform within 120 sec, the trial is terminated and the escape latency is recorded as 120 sec, and the rat is guided to the platform. On day 5, the swimming path is recorded by a video recording system, and the digital images are analyzed by the water maze software. In addition, the probe test is performed, in which the platform is removed, and the rat is allowed to swim freely in the pool for 120 sec. The swimming time in the target quadrant is recorded ^[3] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- J Exp Clin Cancer Res. 2021 Feb 9;40(1):62.
- Phytother Res. 2022 Nov 28.
- Biomater Sci. 2021 Jun 30.
- Int Immunopharmacol. 2022 May 24;108:108864.
- Pharmaceutics. 2023 Aug 28, 15(9), 2220.

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REFERENCES

- [1]. Tang B, et al. Asiaticoside suppresses collagen expression and TGF- β /Smad signaling through inducing Smad7 and inhibiting TGF- β RI and TGF- β RII in keloid fibroblasts. *J Dermatol Res.* 2011 Oct;303(8):563-72.
- [2]. Wang X, et al. Effect of asiaticoside on endothelial cells in hypoxia-induced pulmonary hypertension. *Mol Med Rep.* 2018 Feb;17(2):2893-2900.
- [3]. Zhang Z, et al. Asiaticoside ameliorates β -amyloid-induced learning and memory deficits in rats by inhibiting mitochondrial apoptosis and reducing inflammatory factors. *Exp Ther Med.* 2017 Feb;13(2):413-420.
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Caution: Product has not been fully validated for medical applications. For research use only.

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