Aristolochic acid A

Cat. No.: HY-N0510

CAS No.: 313-67-7

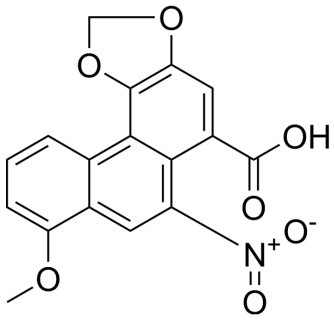
Molecular Formula: $C_{17}H_{11}NO_7$

Molecular Weight: 341.27

Target: NF-κB

Pathway: NF-κB

Storage: 4°C, protect from light
* In solvent : -80°C, 1 year; -20°C, 6 months (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 16.67 mg/mL (48.85 mM; Need ultrasonic)

Preparing Stock Solutions	Concentration / Solvent / Mass	1 mg	5 mg	10 mg
	1 mM	2.9302 mL	14.6512 mL	29.3023 mL
	5 mM	0.5860 mL	2.9302 mL	5.8605 mL
	10 mM	0.2930 mL	1.4651 mL	2.9302 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: ≥ 2.08 mg/mL (6.09 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Aristolochic acid A (Aristolochic acid I; TR 1736) is the main component of plant extract Aristolochic acids, which are found in various herbal plants of genus Aristolochia and Asarum. Aristolochic acid A significantly reduces both activator protein 1 (AP-1) and NF-κB activities. Aristolochic acid A reduces BLCAP gene expression in human cell lines[1].

In Vitro

Aristolochic acid A (150, 200 μM, 24 hours) inhibits the cell viabilities of kidney cells HEK293 and HK-2[1].
Aristolochic acid A (100, 200 μM, 24 hours) causes a concentration-dependent decrease in bladder cancer-associated protein (BLCAP) mRNA levels in kidney cells (HEK 293 and HK-2) , and bladder cancer cell line (HT-1376)[1].
Aristolochic acid A (100, 200 μM, 24 hours) weakens the BLCAP protein signals in a dose-dependent manner in both HEK293 and HT-1376 cells[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	Kidney cells (HEK 293 and HK-2)

Concentration:	50, 100, 150, 200 μM
Incubation Time:	24 hours
Result:	The cell viabilities of HEK293 and HK-2 were lower than that of vehicle-treated cultures until 150 μM and 200 μM.

RT-PCR[1]

Cell Line:	Kidney cells (HEK 293 and HK-2), and bladder cancer cell line (HT-1376)
Concentration:	100, 200 μM
Incubation Time:	24 hours
Result:	Down regulated the levels of BLCAP mRNA.

Western Blot Analysis[1]

Cell Line:	HEK293 and HT-1376 cells
Concentration:	100, 200 μM
Incubation Time:	24 hours
Result:	Reduced the BLCAP protein expression in a dose-dependent manner.

In Vivo

The pharmarcokinetic data shows the level of Aristolochic acid A (10 mg/kg i.p.) after 30min administrating in C57BL/6 male mice in kidney is higher than that in live. The level of Aristolochic acid A in plasma is peak around 30 min[2].

Induction of Nephrotoxicity [2][3]

Background

The pathogenesis of Aristolochic acid Anephropathy remains unclear. Research shows that Aristolochic acid A mainly damages renal tubular epithelial cells and renal tules, leading to interstitial fibrosis, thereby producing nephrotoxicity.

Specific Mmodeling Methods

Mice: C57BL/6J • 8?weeks of age

Administration: 10 mg/kg • i.p. • 3-5 days[3]

Note

Modeling Record

Pathology changs: H&E stain shows renal tissue structure is disordered, glomerular edema, pyknosis, and proximal tubule epithelial cell shedding

Biochemistry changes: Scr and blood urea nitrogen (BUN) contents increases

Correlated Product(s):

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

CUSTOMER VALIDATION

- Int J Mol Sci. 2024 May 8;25(10):5124.
- J Clin Med. 22 September 2022.
- Front Genet. 2022 Mar 25;13:840961.
- Toxicol Lett. 2024 Apr:394:76-91.
- Chin J Integr Med. 2022 Apr 7.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Chenchen Feng, et al. Tanshinone I protects mice from aristolochic acid I-induced kidney injury by induction of CYP1A. Environ Toxicol Pharmacol. 2013 Nov;36(3):850-7.

[2]. Youjia Zeng, et al. Autophagy inhibitors promoted aristolochic acid I induced renal tubular epithelial cell apoptosis via mitochondrial pathway but alleviated nonapoptotic cell death in mouse acute aritolochic acid nephropathy model. Apoptosis. 2014 Aug;19(8):1215-24.

[3]. Huang YT, et al. Aristolochic acid I interferes with the expression of BLCAP tumor suppressor gene in human cells. Toxicol Lett. 2018 Jul;291:129-137.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA