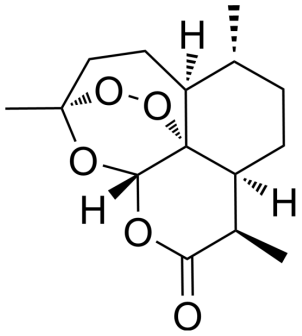
Artemisinin

Cat. No.:	HY-B0094
CAS No.:	63968-64-9
Molecular Formula:	$C_{15}H_{22}O_5$
Molecular Weight:	282.33
Target:	HCV; Parasite; Akt; Ferroptosis
Pathway:	Anti-infection; PI3K/Akt/mTOR; Apoptosis
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 1 year -20°C 6 months



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (177.10 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (ultrasonic) (insoluble)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.5420 mL	17.7098 mL	35.4195 mL
	5 mM	0.7084 mL	3.5420 mL	7.0839 mL
	10 mM	0.3542 mL	1.7710 mL	3.5420 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 (7.37 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (7.37 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (7.37 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Artemisinin (Qinghaosu), a sesquiterpene lactone, is an anti-malarial agent isolated from the aerial parts of Artemisia annua L. plants[1]. Artemisinin inhibits AKT signaling pathway by decreasing pAKT in a dose-dependent manner. Artemisinin reduces cancer cell proliferation, migration, invasion, tumorigenesis and metastasis and has neuroprotective effects[2].

IC_{50} & Target

Plasmodium

In Vitro

Artemisinin (Qinghaosu) (25 or 50 μM; 24 hours) concentration-dependently suppresses Aβ25-35 induced cytotoxicity in PC12 cells[1].

Artemisinin (1-100 μM; 24 hours) selectively inhibits cancer cell growth in a dose-dependent manner with IC_{50} values of 31.30 ± 0.73 μM in UMRC-2 cells and 23.97 ± 0.92 CAKI-2 cells[2].

Artemisinin (25, 50 μM; 24 hours) suppresses the phosphorylation of AKT in UMRC-2 and CAKI-2 cells in a dose-dependent manner[2].

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

Cell Cytotoxicity Assay[1]

Cell Line:	PC12 cells
Concentration:	25 or 50 μM
Incubation Time:	24 hours
Result:	Protected and rescue PC12 cells against Aβ25-35-induced cell death.

Cell Viability Assay[2]

Cell Line:	RCC cells, RCC cell lines UMRC-2 and CAKI-2, and normal renal cell HK-2
Concentration:	1, 5, 10, 50, and 100 μM
Incubation Time:	24 hours
Result:	Selectively inhibited cancer cell growth in a dose-dependent manner.

Western Blot Analysis[2]

Cell Line:	UMRC-2 and CAKI-2 cells
Concentration:	25, 50 μM
Incubation Time:	24 hours
Result:	Decreased pAKT in a dose-dependent manner.

In Vivo

Artemisinin (gavage; 20 mg/kg/day; for two weeks) suppresses UMRC-2 xenograft tumor growth[2].

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

Animal Model:	4-6 weeks old male nude mice[2]
Dosage:	20 mg/kg
Administration:	gavage; every day for two weeks
Result:	Suppressed UMRC-2 xenograft tumor growth.

CUSTOMER VALIDATION

- Cell Mol Immunol. 2023 Jan;20(1):51-64.
- J Adv Res. 2023 Sep 25;S2090-1232(23)00289-8.
- Cancer Lett. 2024 Feb 13:216732.

- Cell Death Dis. 2021 Mar 15;12(3):276.
- Cell Mol Biol Lett. 2022 Jul 28;27(1):62.

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REFERENCES

[1]. Zeng Z, et al. Artemisinin protects PC12 cells against β-amyloid-induced apoptosis through activation of the ERK1/2 signaling pathway. Redox Biol. 2017 Apr 4;12:625-633.

[2]. Lin SP, et al. Artemisinin Prevents Glutamate-Induced Neuronal Cell Death Via Akt Pathway Activation. Front Cell Neurosci. 2018 Apr 20;12:108.

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