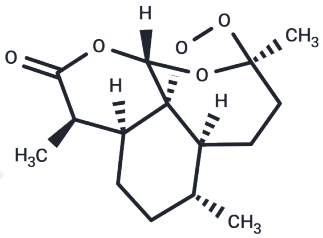
Data Sheet (Cat.No.T0392)

TargetMol

Artemisinin

Chemical Properties



CAS No. : 63968-64-9

Formula: C15H22O5

Molecular Weight: 282.33

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Artemisinin (Qinghaosu) is a natural product, a sesquiterpene lactone, derived from Artemisia annua. Artemisinin has anti-malarial activity, as well as neuroprotective and anti-tumor activity.
Targets(IC50)	HCV Protease,Ferroptosis,Akt,Parasite
In vitro	**METHODS**: A375 and Sk-Mel-28 cells were treated with Spautin-1 (2.5-20 μmol/L) for 24-72 h. Cell viability was determined by MTS assay. **RESULTS**: Spautin-1 significantly reduced the proliferation of A375 and SK-Mel-28 in a dose- and time-dependent manner. 72 h IC50 values of Spautin-1 on A375 and SK-Mel-28 were 1.830 and 2.062 μmol/L, respectively.[1] **METHODS**: K562 cells were treated with Imatinib mesylate (250 nM) for 12 h and Spautin-1 (10 μM) for 36 h. The expression levels of target proteins were detected by Western Blot. **RESULTS**: The autophagy in K562 cells was activated by Imatinib mesylate treatment, and the autophagy in K562 cells induced by Imatinib mesylate was strongly inhibited by Spautin-1. Spautin-1 strongly inhibited autophagy induced by Imatinib mesylate. [2]
In vivo	**METHODS**: To investigate the therapeutic potential for acute pancreatitis, Spautin-1 (2 mg/kg) was intraperitoneally injected into KunMing mice with cerulein or L-arginine induced pancreatitis. **RESULTS**: Spautin-1 effectively inhibited autophagic flux and ameliorated the pathogenesis of acute pancreatitis induced by cerulein or L-arginine. The effects of Spautin-1 in ameliorating acute pancreatitis were associated with impaired autophagic inhibition and alleviation of Ca2+ overload. [3] **METHODS**: To investigate the effects on cognitive and memory deficits after traumatic brain injury (TBI), Spautin-1 (10 mmol/uL, 2 uL) was injected into the left ventricle. **RESULTS**: Spautin-1 administration may attenuate mild TBI-induced cognitive and memory dysfunction in mice by activating caspase-3. [4]
Kinase Assay	Briefly, PC12 cells are lysed in lysis buffer and centrifuged at 12,500×g for 5 min 15 mL of cell lysate is incubated with 50 mL of 2X substrate working solution at room temperature for 30 min in 96-well plates. The fluorescence intensity is then determined by Infinite M200 PRO Multimode Microplate at an excitation wavelength of 490 nm and emission at 520 nm. The fluorescence intensity of each sample is normalized to the protein concentration of sample. All values of % caspase 3/7 activities are normalized to the control group.

Cell Research	Artemisinin is diluted in 0.01% DMSO. For this purpose, cells are cultivated in 96-well plates in DMEM, supplemented with insulin. The artemisinin, Dox, and DDP are added to media at different concentrations and the cells are cultivated for either 24 or 48 h. For this purpose artemisinin is diluted in 0.01% DMSO in media. After this time, 10 μL of the MTT dye solution (5 mg/mL in phosphate buffer saline) is added to the cells; the cells are incubated at the same conditions for 3 h. After centrifugation (1500 rpm, 5 min) the supernatant is removed. 100 μL of dimethyl sulfoxide is added to each well, to dissolve formazan. The absorption is measured, using a multi-well spectrophotometer at a wavelength of 540 nm.

Solubility Information

Solubility	DMSO: 50 mg/mL (177.1 mM),Sonication is recommended. Ethanol: 21.2 mg/mL (75.09 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (7.08 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.542 mL	17.7098 mL	35.4195 mL
5 mM	0.7084 mL	3.542 mL	7.0839 mL
10 mM	0.3542 mL	1.771 mL	3.542 mL
50 mM	0.0708 mL	0.3542 mL	0.7084 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Zhu S, et al. Artemisinin reduces cell proliferation and induces apoptosis in neuroblastoma. Oncol Rep. 2014 Sep; 32(3):1094-100.
Liu Y, Li H, Luo Z, et al. Artesunate, a new antimalarial clinical drug, exhibits potent anti-AML activity by targeting the ROS/Bim and TFRC/Fe2+ pathways. British Journal of Pharmacology. 2022
Farhan M, et al. Artemisinin Inhibits the Migration and Invasion in Uveal Melanoma via Inhibition of the PI3K/AKT/mTOR Signaling Pathway. Oxid Med Cell Longev. 2021 Dec 11;2021:9911537.
O'Neill PM, et al. Molecules,2010, 15(3), 1705-1721.
Xu G, et al. Neuroprotective effects of artemisinin against isoflurane-induced cognitive impairments and neuronal cell death involve JNK/ERK1/2 signalling and improved hippocampal histone acetylation in neonatal rats. J Pharm Pharmacol. 2017 Mar 12.
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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