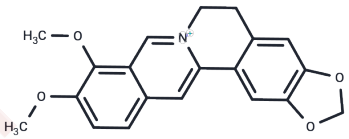
Data Sheet (Cat.No.T4S0797)

TargetMol

Berberine

Chemical Properties



CAS No. : 2086-83-1

Formula: C20H18NO4

Molecular Weight: 336.36

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	1. Berberine (Umbellatine) is a potent oral hypoglycemic agent with beneficial effects on lipid metabolism. 2. Berberine may as a broad-spectrum anti-microbial medicine, a complementary therapeutic agent for HIV/AIDS. 3. Berberine seems to act as an herbal antidepressant and a neuroprotector against neurodegenerative disorders. 4. Berberine is used in histology for staining heparin in mast cells. As a natural dye, berberine has a colour index of 7516. 5. Berberine reduces hepatic fat content in rats with nonalcoholic fatty liver disease; also prevents proliferation of hepatic stellate cells (HSCs), which are central for the development of fibrosis during liver injury. 6. Berberine can ameliorate proinflammatory cytokines-induced intestinal epithelial tight junction damage in vitro, and berberine may be one of the targeted therapeutic agents that can restore barrier function in intestinal disease states. 7. Berberine has antineoplastic effects, including breast cancer, leukemia, melanoma, epidermoid carcinoma, hepatoma, pancreatic cancer, oral carcinoma, tongue carcinoma, glioblastoma, prostate carcinoma and gastric carcinoma, etc.
Targets(IC50)	Reactive Oxygen Species,Endogenous Metabolite,Antibacterial,Antibiotic,Autophagy, Topoisomerase
In vitro	**METHODS**: Human osteosarcoma cells MG-63 were treated with Berberine (20-80 μM) for 12-24 h. Cell viability was measured by MTT assay. **RESULTS**: Berberine induced a concentration- and time-dependent decrease in MG-63 cell viability. [1] **METHODS**: The NPC cell line HONE1 was treated with Berberine (25-50 μM) for 24 h, and the expression levels of target proteins were measured by Western Blot. **RESULTS**: Berberine effectively inhibited the level of p-STAT3 in HONE1 cells, and the down-regulation of STAT3 activation was associated with the inhibition of Mcl-1 expression and an increase in cleaved PARP-1 levels. [2]
In vivo	**METHODS**: To test the antitumor activity in vivo, Berberine (5-10 mg/kg) was injected intraperitoneally every two days for thirty days into nude mice bearing NPC tumor C666-1. **RESULTS**: Berberine effectively inhibited the tumorigenicity and growth of EBV-positive NPC cell line (C666-1) in nude mice. Inhibition of tumorigenic growth of NPC cells in vivo correlated with effective inhibition of STAT3 activation in NPC cells within tumor xenografts in nude mice. [2]

Solubility Information

Solubility	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2.05 mg/mL (6.09 mM),Suspension. Chloroform, Dichloromethane, Ethyl Acetate, Acetone, etc.: Soluble, DMSO: 5.63 mg/mL (16.72 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble) (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.973 mL	14.865 mL	29.7301 mL
5 mM	0.5946 mL	2.973 mL	5.946 mL
10 mM	0.2973 mL	1.4865 mL	2.973 mL
50 mM	0.0595 mL	0.2973 mL	0.5946 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.

Reference

Zhu Y, et al. Berberine induces apoptosis and DNA damage in MG-63 human osteosarcoma cells. Mol Med Rep. 2014 Oct;10(4):1734-8.

Chen Q, Xin G, Li S, et al. Berberine-mediated REDD1 down-regulation ameliorates senescence of retinal pigment epithelium by interrupting the ROS-DDR positive feedback loop. Phytomedicine. 2022: 154181.

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Liu J, Xu H, Zhang L, et al. Chronoefficacy of the herbal medicines Puerariae radix and Coptidis rhizoma in mice: A potential role of REV-ERBα. Frontiers in pharmacology. 2021: 1966.

Zhou Z, Lin Y, Gao L, et al. Circadian Pharmacological Effects of Berberine on Chronic Colitis in Mice: Role of the Clock Component Rev-erbα[J]. Biochemical Pharmacology. 2020, 172: 113773.

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Cui X, Geng H, Guo H, et al.Visualizing the transdermal delivery of berberine loaded within chitosan microneedles using mass spectrometry imaging.Analytical and Bioanalytical Chemistry.2024: 1-9.

Xu Y, Cai Q, Zhao C, et al.Gegen Qinlian Decoction Attenuates Colitis-Associated Colorectal Cancer via Suppressing TLR4 Signaling Pathway Based on Network Pharmacology and In Vivo/In Vitro Experimental Validation. Pharmaceuticals.2024, 18(1): 12.

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