Berbamine dihydrochloride

Cat. No.: HY-N0714A

CAS No.: 6078-17-7

Molecular Formula: $C_{37}H_{42}Cl_2N_2O_6$

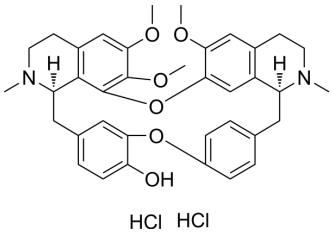
Molecular Weight: 681.65

Target: NF-κB; Autophagy; Apoptosis

Pathway: NF-κB; Autophagy; Apoptosis

Storage: 4°C, sealed storage, away from moisture

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (146.70 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Mass / Solvent / Concentration	1 mg	5 mg	10 mg
1 mM	1.4670 mL	7.3351 mL	14.6703 mL
5 mM	0.2934 mL	1.4670 mL	2.9341 mL
10 mM	0.1467 mL	0.7335 mL	1.4670 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 (3.05 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (3.05 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (3.05 mM); Clear solution

BIOLOGICAL ACTIVITY

Description Berbamine dihydrochloride is an inhibitor of NF-κB activity with remarkable anti-myeloma efficacy.

IC_{50} & Target NF-κB; Autophagy

In Vitro

Berbamine, a novel NF-κB inhibitor, inhibits growth and induces apoptosis in human myeloma cells. Berbamine treatment leads to increased expression of A20, down-regulation of IKKα, p-IκBα, and follows by inhibition of p65 nuclear localization. As a result, NF-κB downstream targets such as cyclin D1, Bcl-xL, Bid and survivin are down-regulated. To determine whether Berbamine has growth inhibitory effect on myeloma cells, KM3 cells are treated with Berbamine at various concentrations

	for 24, 48, and 72 h, respectively, and then cell viability is assessed by MTT assays. Berbamine inhibits the growth of KM3 cells in a dose- and time-dependent manner, and the IC_{50} values are 8.17 μg/mL, 5.09 μg/mL, and 3.84 μg/mL for treatment of 24, 48, and 72 h, respectively. In contrast, IC_{50} value of Berbamine for normal hematopoietic cells is 185.20 μg/mL at 48 h [1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Berbamine (BBM) is a natural bisbenzylisoquinoline product isolated from traditional Chinese herbal medicine Berberis amurensis and has been used to treat inflammatory and other diseases.The anti-tumor effects of Berbamine are determined on a xenograft animal model. Two liver cancer cell lines, Huh7 (epithelial) and SK-Hep-1 (mesenchymal-like), are inoculated into NOD/SCID mice by subcutaneous injection. The oral Berbamine treatment greatly suppresses the growth of Huh7 xenografted tumors over the time and leads to a tumor reduction by 70% based on the tumor weight. The growth of SK-Hep-1 cells in NOD/SCID mice is less sensitive to Berbamine than that of Huh7. There is a significant suppression of the growth of the SK-Hep-1 xenograft with more than 50% reduction of the tumor weight[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	The inhibitory effect of Berbamine on growth of KM3 cells is measured by MTT assay. Briefly, KM3 cells (8×10^3 per well) are incubated with increasing concentrations of Berbamine (1-32 μg/mL) for 24, 48, or 72 h and then pulsed with 20 μL of 5 mg/mL MTT for the last 4 h, 200 μL DMSO is then added to dissolve the formazan crystals. Dye absorbance in viable cells is measured at 570 nm, and then the inhibitory concentration of 50% (IC_{50}) is calculated[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	Mice[2] 5×10^6 Huh7 cells in 50% Matrigel dissolved in PBS are inoculated in a NOD/SCID mice. 5×10^6 SK-Hep-1 cells are applied for each xenograft without Matrigel. 100 mg/kg of Berbamine is orally treated to mice with a regimen of twice a day for 5 consecutive days after the tumors reach a size of 2 mm in diameter. After 2 days withdraw, the regimen is repeated once[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Mol Pharm. 2022 Oct 21.
- Drug Des Devel Ther. 2022 Jan 11;16:129-141.
- Cell Stress Chaperones. 2021 Jan 6.
- Patent. US20220017867A1.
- Chemrxiv. Oct 12, 2021.

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REFERENCES

[1]. Liang Y, et al. Berbamine, a novel nuclear factor kappaB inhibitor, inhibits growth and induces apoptosis in human myeloma cells. Acta Pharmacol Sin. 2009 Dec;30(12):1659-65.

[2]. Meng Z, et al. Berbamine inhibits the growth of liver cancer cells and cancer-initiating cells by targeting Ca^{2+}/calmodulin-dependent protein kinase II. Mol Cancer Ther. 2013 Oct;12(10):2067-77.

Caution: Product has not been fully validated for medical applications. For research use only.

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