Dihydroberberine

Cat. No.: HY-N1934

CAS No.: 483-15-8

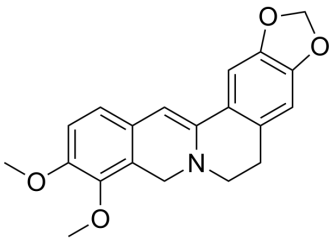
Molecular Formula: $C_{20}H_{19}NO_4$

Molecular Weight: 337.37

Target: Potassium Channel; HSP

Pathway: Membrane Transporter/Ion Channel; Cell Cycle/DNA Damage; Metabolic Enzyme/Protease

Storage: 4°C, sealed storage, away from moisture and light
* The compound is unstable in solutions, freshly prepared is recommended.



SOLVENT & SOLUBILITY

In Vitro

DMSO : 20 mg/mL (59.28 mM; ultrasonic and warming and heat to 70°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.9641 mL	14.8205 mL	29.6410 mL
	5 mM	0.5928 mL	2.9641 mL	5.9282 mL
	10 mM	0.2964 mL	1.4821 mL	2.9641 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 mg/mL (5.93 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Dihydroberberine is a naturally occurring isoquinoline alkaloid with anti-inflammatory, anti-atherosclerotic, hypolipidemic and anti-tumor activities. Dihydroberberine inhibits the human ether-related gene (hERG) channel and significantly reduces the expression of heat shock protein 90 (Hsp90) and its interaction with hERG. Dihydroberberine also blocks the TLR4/MyD88/NF-κB signaling pathway to reduce pro-inflammatory cytokines and immunoglobulins, and has inhibitory effects on DSS (HY-116282C)-induced experimental colitis. Dihydroberberine also increases the sensitivity of lung cancer to sunitinib (HY-10255A), with synergistic efficacy[1][2].

IC_{50} & Target

HSP90

In Vitro

Dihydroberberine has a synergistic effect with sunitinib, and when mixed together, it exhibits anti-cancer effects in human non-small cell lung cancer cell lines (NSCLC), A549, NCI-H460 and NCI-H1299 cells. Dihydroberberine (25 μM; 48 h) inhibits NCI-H460 cell proliferation and colony formation[2].
NCI-H460 cells were treated with a mixture (DCS) of Dihydroberberine (25 μM) and Sunitinib (2 μM) to arrest the cell cycle in

	the G1 phase. DCS regulates JNK/p38 MAPK signaling and plays a role in inducing apoptosis[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Dihydroberberine (250 mg/kg; intragastric gavage, once every other day for 14 days) effectively inhibits tumor growth and proliferation in the mouse NCI-H460 xenograft model and exhibits synergistic with Sunitini[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Yu D, et al. Inhibitory effects and mechanism of dihydroberberine on hERG channels expressed in HEK293 cells. PLoS One. 2017 Aug 1;12(8):e0181823.

[2]. Li C, et al. Dihydroberberine, an isoquinoline alkaloid, exhibits protective effect against dextran sulfate sodium-induced ulcerative colitis in mice. Phytomedicine. 2021 Sep;90:153631.

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