Epiberberine chloride

Cat. No.: HY-N0226A

CAS No.: 889665-86-5

Molecular Formula: $C_{20}H_{18}ClNO_4$

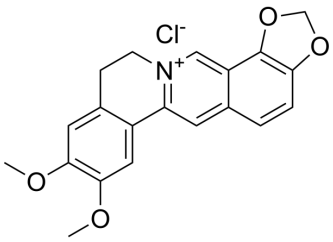
Molecular Weight: 371.81

Target: Cholinesterase (ChE); Beta-secretase; Reactive Oxygen Species

Pathway: Neuronal Signaling; Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB

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 : 25 mg/mL (67.24 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.6895 mL	13.4477 mL	26.8955 mL
	5 mM	0.5379 mL	2.6895 mL	5.3791 mL
	10 mM	0.2690 mL	1.3448 mL	2.6895 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.72 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Epiberberine chloride is an alkaloid isolated from Coptis chinensis, acts as a potent AChE and BChE inhibitor, and a non-competitive BACE1 inhibitor, with IC_{50}s of 1.07, 6.03 and 8.55 μM, respectively. Epiberberine chloride has antioxidant activity, with peroxynitrite $ONOO^-$ scavenging effect (IC_{50}, 16.83 μM), and may protect against Alzheimer disease[1]. Epiberberine chloride inhibits the early stage of differentiation of 3T3-L1 preadipocytes, downregulates the Raf/MEK1/2/ERK1/2 and AMPKα/Akt pathways[2]. Epiberberine has the potential effect in the research of diabetic disease[3].

IC_{50} & Target			
	AChE	BACE1	BChE

In Vitro

Epiberberine (0, 12.5, 25, or 50 μM) dose-dependently inhibits cellular triglyceride accumulation in 3T3-L1 adipocytes, with an IC_{50} of 52.8 μM[2].

Epiberberine (12.5-50 μM) suppresses the Raf/MEK1/ERK1/2 and AMPKα/Akt pathways in the early stage of 3T3-L1 adipocyte differentiation[2].

Epiberberine (0.2, 1, 5 μg/mL) inhibits glucose uptake in HepG2 cells in a concentration-dependent manner[3].

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

In Vivo	Epiberberine (225 mg/kg, p.o. daily for 40 days) reduces body weight, food consumption, water intake, and urinary output of KK-Ay mice[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- J Ethnopharmacol. 2024 Feb 19:117931.
- Aging (Albany NY). 2021 Oct 9;13(19):23193-23209.
- J Biomol Struct Dyn. 2022 Dec 29;1-38.

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REFERENCES

[1]. Jung HA, et al. Anti-Alzheimer and antioxidant activities of Coptidis Rhizoma alkaloids. Biol Pharm Bull. 2009 Aug;32(8):1433-8.

[2]. Choi JS, et al. Anti-adipogenic effect of epiberberine is mediated by regulation of the Raf/MEK1/2/ERK1/2 and AMPKα/Akt pathways. Arch Pharm Res. 2015 Dec;38(12):2153-62.

[3]. Ma H, et al. Antihyperglycemia and Antihyperlipidemia Effect of Protoberberine Alkaloids From Rhizoma Coptidis in HepG2 Cell and Diabetic KK-Ay Mice. Drug Dev Res. 2016 Jun;77(4):163-70.

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