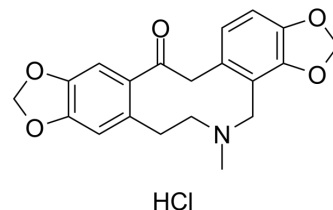


Protopine hydrochloride

Cat. No.:	HY-N0793A
CAS No.:	6164-47-2
Molecular Formula:	C ₂₀ H ₂₀ ClNO ₅
Molecular Weight:	389.83
Target:	Cholinesterase (ChE)
Pathway:	Neuronal Signaling
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Protopine hydrochloride, an isoquinoline alkaloid, is a specific reversible and competitive inhibitor of acetylcholinesterase. Protopine hydrochloride exhibits anti-inflammation, anti-microbial, anti-angiogenic and anti-tumour activity ^{[1][2]} .								
In Vitro	<p>Protopine (10-40 μM, 24 h-96 h) hydrochloride inhibits cell viability, migration, invasion and EMT process of liver carcinoma cells (HepG2, Huh7)^[2].</p> <p>Protopine (10-40 μM, 24 h) hydrochloride induces apoptosis by increasing the expression of caspase-3 and caspase-9 in HepG2 and Huh7 cells, and inhibits the PI3K/Akt signaling pathway^[2].</p> <p>Protopine (10-40 μM, 6 h) hydrochloride induces generation of ROS in HepG2 and Huh7 cells^[2].</p> <p>Protopine (0-10 μg/mL) hydrochloride inhibits the uptake of serotonin transporter (SERT) in S6 cells and noradrenaline (NE) uptake in N1 cells^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Western Blot Analysis^[2]</p> <table border="1"> <tr> <td>Cell Line:</td> <td>HepG2, Huh7</td> </tr> <tr> <td>Concentration:</td> <td>10, 20, 40 μM</td> </tr> <tr> <td>Incubation Time:</td> <td>24 h</td> </tr> <tr> <td>Result:</td> <td>Induced the cleavage of caspase-3 and caspase-9. Decreased Bcl-2 and Bcl-xl level. Induced the release of mitochondrial protein cytochrome c into the cytosol.</td> </tr> </table>	Cell Line:	HepG2, Huh7	Concentration:	10, 20, 40 μM	Incubation Time:	24 h	Result:	Induced the cleavage of caspase-3 and caspase-9. Decreased Bcl-2 and Bcl-xl level. Induced the release of mitochondrial protein cytochrome c into the cytosol.
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In Vivo	<p>Protopine (0.1 and 1 mg/kg, i.p.) hydrochloride alleviates Scopolamine (HY-N0296) (1 mg/kg)-induced memory impairment in mice^[1].</p> <p>Protopine (5-20 mg/kg, i.v.) hydrochloride inhibits tumor growth and inhibits PI3K/Akt, and induces cleavage of caspase-3 in xenograft BALB/c mice (s.c. with HepG2 or Huh-7 cells)^[2].</p> <p>Protopine (5-20 mg/kg, i.p.) hydrochloride shows antidepressant-like effect in mice HTR and TST tests^[3].</p> <p>Protopine (1-4 mg/kg, i.p., once daily for 3 days) hydrochloride shows protective effect on the focal cerebral ischaemic induced injury in rats^[4].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>								

Animal Model:	5-hydroxy-DL-tryptophan (5-HTP)-induced mice model ^[3]
Dosage:	5, 10, 20 mg/kg
Administration:	i.p.
Result:	Increased the number of 5-HTP-induced head twitch response (HTR). Decreased the immobility time tested in the Tail suspension test (TST).

REFERENCES

- [1]. Kim SR, et, al. Protopine from *Corydalis ternata* has anticholinesterase and anti-amnesic activities. *Planta Med.* 1999 Apr;65(3):218-21.
- [2]. Nie C, et, al. Protopine triggers apoptosis via the intrinsic pathway and regulation of ROS/PI3K/Akt signalling pathway in liver carcinoma. *Cancer Cell Int.* 2021 Jul 27;21(1):396.
- [3]. Xu LF, et al. Protopine inhibits serotonin transporter and noradrenaline transporter and has the antidepressant-like effect in mice models. *Neuropharmacology.* 2006 Jun;50(8):934-40.
- [4]. Xiao X, et al. Protective effect of protopine on the focal cerebral ischaemic injury in rats. *Basic Clin Pharmacol Toxicol.* 2007 Aug;101(2):85-9.
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Caution: Product has not been fully validated for medical applications. For research use only.

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