Maprotiline

Cat. No.: HY-B0444A

CAS No.: 10262-69-8

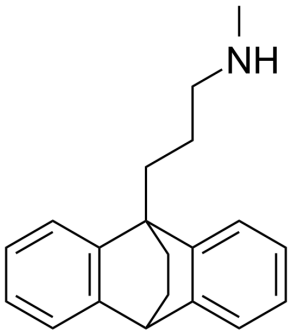
Molecular Formula: $C_{20}H_{23}N$

Molecular Weight: 277.4

Target: Autophagy

Pathway: Autophagy

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Maprotiline is a highly selective noradrenergic reuptake blocker, has strong antidepressant efficacy. Maprotiline induces cancer cells apoptosis by targeting ERK signaling pathway and CRABP1. Maprotiline restrains cell proliferation and metastasis, exhibits anticancer effect[1][2].

In Vitro

Maprotiline (10 μM) enhances the sensitivity of HCC cells to sorafenib (2 μM) and induces apoptosis[2].

Maprotiline (0, 10, or 20 μM for 72 h) works on ERK pathway and inhibits phosphorylation of SREBP2 in HepG2 and Huh7 cells [2].

Maprotiline may target CRABP1 and regulate cholesterol biosynthesis in HCC cells[2].

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

Cell Invasion Assay[2]

Cell Line:	The human HCC cell lines Huh7 and HepG2
Concentration:	0, 10, 20 μM
Incubation Time:	24 hours
Result:	Restrained HCC cells migration with inhibition of epithelial-mesenchymal transition (EMT).

Cell Viability Assay[2]

Cell Line:	The human HCC cell lines Huh7 and HepG2
Concentration:	0, 10, 20 μM
Incubation Time:	0, 24, 48, 72, 96, 120 hours
Result:	Triggered cell apoptosis and inhibited the cell viability of Huh7 and HepG2 cells in a dose- and time-dependent manner.

Western Blot Analysis[2]

Cell Line:	The human HCC cell lines Huh7 and HepG2
Concentration:	0, 10, 20 μM

Incubation Time:	72 hours
Result:	Inhibited cholesterol biosynthesis in HCC Cells.

In Vivo

Maprotiline (3, 10, or 30 mg/kg; i.p.) combinds with the synthetic cannabinoid WIN 55,212-2 and effectively reduces neuropathic pain[1].

Maprotiline (0, 20, or 40 mg/kg; i.p.; twice a week; 3 weeks) shows low toxicity and side effects on the organs, immune system and hematopoietic function[2].

Maprotiline (0, 20, or 40 mg/kg; i.p.; twice a week; 3 weeks) restrains cholesterol biosynthesis to inhibit growth and metastasis of HCC cells by interacting with CRABP1[2].

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

Animal Model:	Male Balb-c mice (25–30 g)[1]
Dosage:	3, 10, 30 mg/kg
Administration:	Intraperitoneal injection; evaluation 30 minutes after treatment
Result:	Attenuated pain-related behaviours in neuropathic mice.

Animal Model:	Nude mice (BALB/C nu/nu, 4–6 weeks old, female)[2]
Dosage:	40 mg/kg
Administration:	Intraperitoneal injection; twice a week; 3 weeks
Result:	Decreased the cholesterol levels in serum and tumors and suppressed the growth of Huh7-derived tumor xenografts without obvious toxic effect.

CUSTOMER VALIDATION

- PLoS Negl Trop Dis. 2019 Aug 20;13(8):e0007681.

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REFERENCES

[1]. Gunduz O, et al. Analysis of the anti-allodynic effects of combination of a synthetic cannabinoid and a selective noradrenaline re-uptake inhibitor in nerve injury-induced neuropathic mice. Eur J Pain. 2016 Mar. 20(3):465-71.

[2]. Zheng C, et al. Maprotiline Suppresses Cholesterol Biosynthesis and Hepatocellular Carcinoma Progression Through Direct Targeting of CRABP1. Front Pharmacol. 2021 May 20. 12:689767.

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

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