Imipramine-d_4 hydrochloride

Cat. No.: HY-B1490S

CAS No.: 61361-33-9

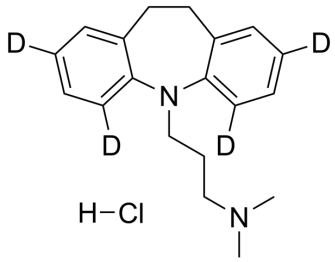
Molecular Formula: $C_{19}H_{21}D_4ClN_2$

Molecular Weight: 320.89

Target: Serotonin Transporter; Apoptosis; Autophagy

Pathway: Neuronal Signaling; Apoptosis; Autophagy

Storage: 4°C, sealed storage, away from moisture and light
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (311.63 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.1163 mL	15.5817 mL	31.1633 mL
	5 mM	0.6233 mL	3.1163 mL	6.2327 mL
	10 mM	0.3116 mL	1.5582 mL	3.1163 mL

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

BIOLOGICAL ACTIVITY

Description

Imipramine-d_4 (hydrochloride) is the deuterium labeled Imipramine hydrochloride. Imipramine hydrochloride is an orally active tertiary amine tricyclic antidepressant. Imipramine hydrochloride is a Fascin1 inhibitor with antitumor activities. Imipramine hydrochloride also inhibits serotonin transporter with an IC50 value of 32 nM. Imipramine hydrochloride stimulates U-87MG glioma cells autophagy and induces HL-60 cell apoptosis. Imipramine hydrochloride shows neuroprotective and immunomodulatory effects[1][2][3][4][5][6].

In Vitro

Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. Ann Pharmacother. 2019;53(2):211-216.

[2]. Alburquerque-González B, et al. New role of the antidepressant imipramine as a Fascin1 inhibitor in colorectal cancer cells. Exp Mol Med. 2020 Feb;52(2):281-292.

[3]. Jeon SH, et al. The tricyclic antidepressant imipramine induces autophagic cell death in U-87MG glioma cells. Biochem Biophys Res Commun. 2011 Sep 23;413(2):311-7.

[4]. Xia Z, et al. The antidepressants imipramine, clomipramine, and citalopram induce apoptosis in human acute myeloid leukemia HL-60 cells via caspase-3 activation. J Biochem Mol Toxicol. 1999;13(6):338-47.

[5]. Ramirez K, et al. Imipramine attenuates neuroinflammatory signaling and reverses stress-induced social avoidance. Brain Behav Immun. 2015 May;46:212-20.

[6]. Balkovetz DF, et al. Evidence for an imipramine-sensitive serotonin transporter in human placental brush-border membranes. J Biol Chem. 1989 Feb 5;264(4):2195-8.

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