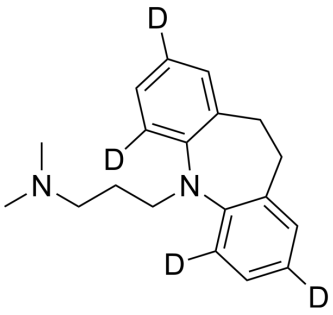
Imipramine-d_4

Cat. No.:	HY-B1490AS1
CAS No.:	96705-18-9
Molecular Formula:	$C_{19}H_{20}D_4N_2$
Molecular Weight:	284.43
Target:	Serotonin Transporter; Apoptosis; Autophagy; Isotope-Labeled Compounds
Pathway:	Neuronal Signaling; Apoptosis; Autophagy; Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Imipramine-d_4 is deuterium labeled Imipramine. Imipramine is an orally active tertiary amine tricyclic antidepressant. Imipramine is a Fascin1 inhibitor with antitumor activities. Imipramine also inhibits serotonin transporter with an IC50 value of 32 nM. Imipramine stimulates U-87MG glioma cells autophagy and induces HL-60 cell apoptosis. Imipramine 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.

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

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