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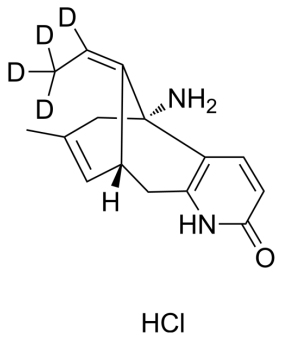
(-)-Huperzine A-d_4 hydrochloride

Cat. No.:	HY-17387S1
Molecular Formula:	$C_{15}H_{15}D_4ClN_2O$
Molecular Weight:	282.8
Target:	iGluR; Cholinesterase (ChE); Apoptosis; Isotope-Labeled Compounds
Pathway:	Membrane Transporter/Ion Channel; Neuronal Signaling; Apoptosis; Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	(-)-Huperzine A-d_4 hydrochloride is deuterated labeled (-)-Huperzine A (HY-17387). (-)-Huperzine A (Huperzine A) is an alkaloid isolated from Huperzia serrata, with neuroprotective activity. (-)-Huperzine A is a potent, highly specific, reversible and blood-brain barrier penetrant inhibitor of acetylcholinesterase (AChE), with an IC_{50} of 82 nM. (-)-Huperzine A also is non-competitive antagonist of N-methyl-D-aspartate glutamate (NMDA) receptor. (-)-Huperzine A is developed for the research of neurodegenerative diseases, including Alzheimer's disease[1][2][3][4][5].
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]. (-)-Huperzine A (1 μM; 2 hours) attenuates Aβ23-35 (20 μM)-induced neuronal injury[3]. (-)-Huperzine A (100 μM) reversibly inhibits the NMDA-induced current (IC_{50}=126 μM) in whole-cell voltage-clamp recording in CA1 pyramidal neurons acutely dissociated from rat hippocampus[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	(-)-Huperzine A (0.1-0.2 mg/kg; i.p.; daily; for 12 days) can alleviate the cognitive dysfunction and neuronal degeneration induced by i.c.v. infusion of beta-amyloid protein-(1-40) in rats[6]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. MA Xiao-Chao, XIN Jian, WANG Hai-Xue, et al. Acute effects of huperzine A and tacrine on rat liver. Acta Pharmacol ogica Sinica, 2003, 24(3):247-250.

[2]. Rui Wang, et al. Progress in studies of huperzine A, a natural cholinesterase inhibitor from Chinese herbal medicine. Acta Pharmacol Sin. 2006 Jan;27(1):1-26.

[3]. J M Zhang, et al. Huperzine A, a nootropic alkaloid, inhibits N-methyl-D-aspartate-induced current in rat dissociated hippocampal neurons.Neuroscience. 2001;105(3):663-9

[4]. Maung Kyaw Moe Tun, et al. The pharmacology and therapeutic potential of (−)-huperzine A. J Exp Pharmacol. 2012; 4: 113–123.

[5]. R Wang, et al. Huperzine A attenuates cognitive dysfunction and neuronal degeneration caused by beta-amyloid protein-(1-40) in rat. Eur J Pharmacol. 2001 Jun 15;421(3):149-56.

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

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

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