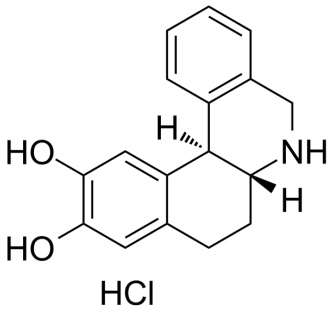
(+)-Dihydrexidine hydrochloride

Cat. No.:	HY-101299
CAS No.:	158704-02-0
Molecular Formula:	$C_{17}H_{18}ClNO_2$
Molecular Weight:	303.78
Target:	Dopamine Receptor
Pathway:	GPCR/G Protein; Neuronal Signaling
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	(+)-Dihydrexidine hydrochloride ((+)-DAR-0100 hydrochloride) is a dopamine D1 receptor agonist with an EC_{50} of 72± 21 nM.
IC_{50} & Target	EC50: 72±21 nM (Dopamine D1 receptor)[1]
In Vitro	(+)-Dihydrexidine hydrochloride (DHX) is a high-potency, bioavailable D1 dopamine receptor agonist. (+)-Dihydrexidine is screened for activity against 40 other binding sites, and is inactive (IC_{50} greater than 10 microM) against all except D2 dopamine receptors (IC_{50}=130 nM) and alpha 2 adrenoreceptors (IC_{50}=230 nM). Dihydrexidine competes stereoselectively and potently for D1 binding sites in rat striatal membranes labeled with [^{3}H]SCH23390 with an IC_{50} of about 10 nM compared to about 30 nM for the prototypical D1 agonist SKF38393[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	To examine the functional state of striatal neurons in response to D1 receptor activation, $AC5^{+/+}$ and $AC5^{-/-}$ mice are injected with the D1 agonist (+)-Dihydrexidine (30 mg/kg, i.p.) and obtained the dorso-lateral striatum and NAc, separately, 45 min later for RT-PCR analysis. These experiments reveal that (+)-Dihydrexidine -triggered induction of the immediate early genes, c-fos, egr-1, and junB, in the NAc is markedly enhanced in $AC5^{-/-}$ mice compared with that in $AC5^{+/+}$ mice, while the induction in the dorso-lateral striatum is suppressed in $AC5^{-/-}$ mice[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [3]	Mice[3] *AC5*$^{-/-}$ mice are backcrossed to the C57BL/6J strain for 9 or 10 generations to obtain heterozygote N9 or N10 mice. Mice are treated with (+)-Dihydrexidine (30 mg/kg, i.p.)[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Lewis MM, et al. Homologous desensitization of the D1A dopamine receptor: efficacy in causing desensitizationdissociates from both receptor occupancy and functional potency. J Pharmacol Exp Ther. 1998 Jul;286(1):345-53.

[2]. Mottola DM, et al. Dihydrexidine, a novel full efficacy D1 dopamine receptor agonist. J Pharmacol Exp Ther. 1992 Jul;262(1):383-93.

[3]. Kim KS, et al. Adenylyl cyclase-5 activity in the nucleus accumbens regulates anxiety-related behavior. J Neurochem. 2008 Oct;107(1):105-15.

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