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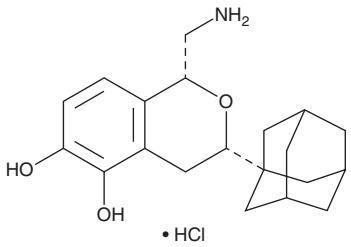
PRODUCT INFORMATION

A-77636 (hydrochloride)

Item No. 24316

CAS Registry No.:	145307-34-2
Formal Name:	(1R,3S)-1-(aminomethyl)-3,4-dihydro-3-tricyclo[3.3.1.1^{3,7}]dec-1-yl-1H-2-benzopyran-5,6-diol, monohydrochloride
MF:	$C_{20}H_{27}NO_3$ • HCl
FW:	365.9
Purity:	≥98%
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

A-77636 (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the A-77636 (hydrochloride) in the solvent of choice, which should be purged with an inert gas. A-77636 (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of A-77636 (hydrochloride) in these solvents is approximately 33 mg/ml.

A-77636 (hydrochloride) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, A-77636 (hydrochloride) should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. A-77636 (hydrochloride) has a solubility of approximately 0.14 mg/ml in a 1:6 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

A-77636 is a dopamine D_1 receptor agonist (K_i = 40 nM).[1] It induces activity equal to or greater than dopamine (Item No. 21992) in an adenylate cyclase assay of D_1 receptor activity in fish retina and rat caudate putamen (EC_{50}s = 7.4 and 1.1 nM, respectively) but does not show agonist activity at D_2 receptors expressed in MMQ cells when used at concentrations up to 10 µM. A-77636 (10 µM) induces desensitization of dopamine-stimulated cAMP accumulation and downregulation of D_1 receptors, reducing D_1 receptor expression by 79% in C-6 glioma cells expressing monkey D_{1A} receptors.[2] In a marmoset model of Parkinson's disease induced by MPTP, A-77636 (3 µmol/kg, s.c.) increases locomotor activity 5.3-fold and reduces disease severity.[1] Subcutaneous administration of A-77636 elicits cortical acetylcholine release at a dose of 1 µmol/kg.[3] It also elicits over a 230% increase in cortical and hippocampal acetylcholine release when administered at a dose of 4 µmol/kg, an effect that is blocked by the D_1 antagonist SCH 23390 (Item No. 15631).

References

1. Kebabian, J.W., Britton, D.R., DeNinno, M.P., *et al.* A-77636: A potent and selective dopamine D_1 receptor agonist with antiparkinsonian activity in marmosets. *Eur. J. Pharmacol.* **229(2-3)**, 203-209 (1992).
2. Lewis, M.M., Watts, V.J., Lawler, C.P., *et al.* Homologous desensitization of the D_{1A} dopamine receptor: Efficacy in causing desensitization dissociates from both receptor occupancy and functional potency. *J. Pharmacol. Exp. Ther.* **286(1)**, 345-353 (1998).
3. Acquas, E., Day, J.C., and Fibiger, H.C. The potent and selective dopamine D_1 receptor agonist A-77636 increases cortical and hippocampal acetylcholine release in the rat. *Eur. J. Pharmacol.* **260(1)**, 85-87 (1994).

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