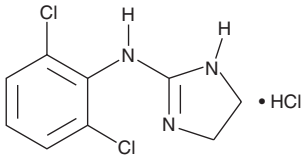
PRODUCT INFORMATION

Clonidine (hydrochloride)

Item No. 15949

CAS Registry No.: 4205-91-8
Formal Name: N-(2,6-dichlorophenyl)-4,5-dihydro-1H-imidazol-2-amine, monohydrochloride
Synonym: ST 155
MF: $C_9H_9Cl_2N_3$ • HCl
FW: 266.6
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

Clonidine (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the clonidine (hydrochloride) in the solvent of choice. Clonidine (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of clonidine (hydrochloride) in these solvents is approximately 2, 3, and 0.3 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of clonidine (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of clonidine (hydrochloride) in PBS, pH 7.2, is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Clonidine is an agonist of α_2-adrenergic receptors (α_2-ARs; K_is = 61.66, 69.18, and 134.9 nM for α_{2A}-, α_{2B}-, and α_{2C}-ARs, respectively).[1] It stimulates [^{35}S]GTPγS binding to HEK293 cell membranes expressing the human receptors with EC_{50} values of 26.92, 56.23, and 912.01 nM for α_{2A}-, α_{2B}-, and α_{2C}-ARs, respectively. Clonidine also binds to I_1-imidazoline sites in a variety of cell and tissue types (K_ds = 4-15 nM).{46373} It induces relaxation of isolated mesenteric artery rings precontracted with norepinephrine (Item No. 16673) when used at a concentration of 10 µM.[1] Clonidine (10 µM) also induces membrane hyperpolarization and reduces norepinephrine-induced depolarization in isolated mesenteric artery rings. Clonidine (0.1 and 1 µg/kg) reduces mean blood pressure and heart rate when administered *via* microinjection to the nucleus reticularis lateralis (NRL) of anesthetized normotensive cats.[3] Formulations containing clonidine have been used in the treatment of hypertension.

References

1. Jasper, J.R., Lesnick, J.D., Chang, L.K., *et al.* Ligand efficacy and potency at recombinant α_2 adrenergic receptors: Agonist-mediated [^{35}S]GTPγS binding. *Biochem. Pharmacol.* **55(7)**, 1035-1043 (1998).
2. Silva, E.G., Feres, T., Vianna, L.M., *et al.* Dual effect of clonidine on mesenteric artery adrenoceptors: Agonistic (alpha-2) and antagonistic (alpha-1). *J. Pharmacol. Exp. Ther.* **277(2)**, 872-876 (1996).
3. Bousquet, P., Feldman, J., and Schwartz, J. Central cardiovascular effects of alpha adrenergic drugs: Differences between catecholamines and imidazolines. *J. Pharmacol. Exp. Ther.* **2301(1)**, 232-236 (1984).

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