LKT Laboratories, Inc.

Clonidine Hydrochloride

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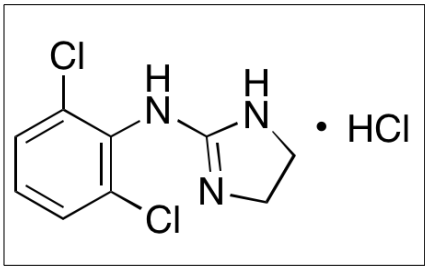
Product Information

Product ID C4558
CAS No. 4205-91-8
Chemical Name

Synonym

Formula $C_9H_9Cl_2N_3 \cdot HCl$
Formula Wt. 266.55
Melting Point 130°C
Purity ≥98%
Solubility



Bulk quanitites available upon request

Product ID	Size
C4558	250 mg
C4558	1 g

Store Temp Ambient
Ship Temp Ambient

Description Clonidine is an α2-adrenergic receptor agonist that also activate the imidazoline 1 receptor, increasing downstream catecholamine synthesis. Clonidine exhibits antihypertensive, neuromoduatory, cognition enhancing, antinociceptive, analgesic, and antipsychotic activities. In hypertensive rats, clonidine increases baroreceptor sensitivity and decreases blood pressure and heart rate. In other animal models, clonidine inhibits long term potentiation (synaptic plasticity) and decreases excitatory postsynaptic potentials (EPSPs) in the medial prefrontal cortex (mPFC), a potential mechanism behind clonidine's ability to decrease glutamate release. Clonidine also improves spatial memory impairments in vivo. This compound is occasionally used clinically for its antipsychotic benefits and is most often used to treat attention deficit hyperactive disorder (ADHD) as a result of its actions that stem from binding postsynaptic α2-adrenergic receptors. In vitro, clonidine inhibits Nav1.7 Na+ channels. In vivo, clonidine decreases mechanical and thermal pain in a model of chronic constriction injury-induced neuropathy, likely due to its ability to downregulate expression of phosphorylated NMDA receptor subunit 1 (pNR1). Clonidine also displays some sedative activity and induces downstream activation of histamine H2 receptors.

References

Li CJ, Zhou M, Li HG, et al. Clonidine suppresses the induction of long-term potentiation by inhibiting HCN channels at the schaffer collateral-CA1 synapse in anesthetized adult rats. Cell Mol Neurobiol. 2013 Nov;33(8):1075-86. PMID: 23975095.

Maruta T, Nemoto T, Satoh S, et al. Dexmedetomidine and clonidine inhibit the function of Na(v)1.7 independent of α(2)-adrenoceptor in adrenal chromaffin cells. J Anesth. 2011 Aug;25(4):549-57. PMID: 21607767.

Roh DH, Kim HW, Yoon SY, et al. Intrathecal clonidine suppresses phosphorylation of the N-methyl-D-aspartate receptor NR1 subunit in spinal dorsal horn neurons of rats with neuropathic pain. Anesth Analg. 2008 Aug;107 (2):693-700. PMID: 18633054.

Ji XH, Ji JZ, Zhang H, et al. Stimulation of alpha2-adrenoceptors suppresses excitatory synaptic transmission in the medial prefrontal cortex of rat. Neuropsychopharmacology. 2008 Aug;33(9):2263-71. PMID: 17957212.

Bardgett ME, Points M, Ramsey-Faulkner C, et al. The effects of clonidine on discrete-trial delayed spatial alternation in two rat models of memory loss. Neuropsychopharmacology. 2008 Jul;33(8):1980-91. PMID: 17882233.

Ma XJ, Shen FM, Liu AJ, et al. Clonidine, moxonidine, folic acid, and mecobalamin improve baroreflex function in stroke-prone, spontaneously hypertensive rats. Acta Pharmacol Sin. 2007 Oct;28(10):1550-8. PMID: 17883939.

Li CG, Rand MJ. Rilmenidine differs from clonidine in that it lacks histamine-like activity. J Pharm Pharmacol. 1989