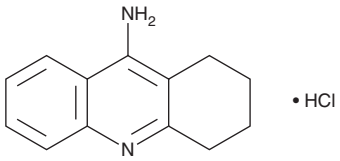
PRODUCT INFORMATION

Tacrine (hydrochloride)

Item No. 70240

CAS Registry No.: 1684-40-8
Formal Name: 1,2,3,4-tetrahydro-9-acridinamine, monohydrochloride
Synonyms: C.I. 970, Hydroaminacrine
MF: $C_{13}H_{14}N_2 \bullet HCl$
FW: 234.7
Purity: ≥98%
UV/Vis.: λ_{max}: 243, 326, 339 nm
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

Tacrine (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the tacrine (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Tacrine (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of Tacrine (hydrochloride) in these solvents is approximately 20, 50, and 33 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 tacrine (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of tacrine (hydrochloride) in PBS (pH 7.2) is approximately 16 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Tacrine is a derivative of aminoacridine that functions as an inhibitor of both acetylcholinesterase (AChE) and butyrylcholinesterase (IC_{50}s = 31 and 26.5 nM, respectively).[1,2] Tacrine also inhibits the uptake of serotonin and norepinephrine in rat cerebral cortex and decreases depolarization-induced calcium influx through L-type calcium channels in SN56 neuronal cells.[3-5] Formulations containing tacrine have been used clinically in the treatment of Alzheimer's disease.[3,6]

References

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2. Ahmed, M., Rocha, J.B., Corrêa, M., *et al.* Inhibition of two different cholinesterases by tacrine. *Chem. Biol. Interact.* **162(2)**, 165-171 (2006).
3. Drukarch, B., Leysen, J.E., and Stoff, J.C. Further analysis of the neuropharmacological profile of 9-amino-1,2,3,4-tetrahydroacridine (THA), an alleged drug for the treatment of Alzheimer's disease. *Life Sci.* **42(9)**, 1011-1017 (1988).
4. McKenna, M.T., Proctor, G.R., Young, L.C., *et al.* Novel tacrine analogues for potential use against Alzheimer's disease: Potent and selective acetylcholinesterase inhibitors and 5-HT uptake inhibitors. *J. Med. Chem.* **40(22)**, 3516-3523 (1997).
5. Dolezal, V., Lisá, V., and Tucke, S. Effect of tacrine on intracellular calcium in cholinergic SN56 neuronal cells. *Brain Res.* **769(2)**, 219-224 (1997).
6. Giacobini, E. Cholinesterase inhibitors for Alzheimer's disease therapy: From tacrine to future applications. *Neurochem Int.* **32(5-6)**, 413-419 (1998).

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