
Product Data Sheet

Product Name: bis(7)-Tacrine

Cat. No.: GC15628

Chemical Properties

Cas. No. 224445-12-9

Chemical Name N,N'-bis(1,2,3,4-tetrahydro-9-acridinyl)-1,7-heptanediamine, dihydrochloride

SMILES [H]N(CCCCCCN([H])C1=C(C=CC=C2)C2=NC3=C1CCCC3)C4=C5C(C=CC=C5)=NC6=C4CCCC6.Cl.Cl

Formula C₃₃H₄₀N₄ • 2HCl

M.Wt 565.6

Solubility ≤20mg/ml in ethanol;20mg/ml in DMSO;20mg/ml in dimethyl formamide

Storage Store at -20°C

General For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath tips for a while.Stock solution can be stored below -20°C for several months.

Shipping Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon Condition request.

Structure

Background

IC50: 0.40 nM

bis(7)-Tacrine is an AChE inhibitor.

Acetylcholinesterase (AChE), the primary cholinesterase in the body, is an enzyme catalyzing the breakdown of acetylcholine and of some other choline esters that function as neurotransmitters.

In vitro: bis(7)-Tacrine, the 9-amino-1,2,3,4-tetrahydroacridine (THA) dimer, was identified as a promising drug candidate for the palliative treatment of Alzheimer's disease, due to its significant enhancement in acetylcholinesterase (AChE) inhibition potency and AChE/butyrylcholinesterase (BChE) selectivity relative to THA itself. Enzyme kinetic studies performed in rat cortex found that both bis(7)-tacrine and THA exhibited mixed inhibition, and the rat cortex KI values were consistent with the previously determined human cerebellum KI values [1].

In vivo: Previous study evaluated the neuropharmacological effects of THA on memory impairment caused by scopolamine injection. BALB/c mice were orally treated with THA at 10 mg/kg for 10 days. Results showed that THA significantly could reduce the total number of entry error and reference memory errors. In addition, THA also inhibited the AChE activity in the hippocampus significantly [2].

Clinical trial: So far, no clinical study has been conducted.

References:

[1] Carlier, P. R., Han, Y.F., Chow, E.S.H., et al. Evaluation of short-tether Bis-THA AChE inhibitors. A further test of the dual binding site hypothesis. *Bioorganic & Medicinal Chemistry* 7, 351-357 (1999).

[2] Lee JS, Hong SS, Kim HG, Lee HW, Kim WY, Lee SK, Son CG. Gongjin-Dan Enhances Hippocampal Memory in a Mouse Model of Scopolamine-Induced Amnesia. *PLoS One*. 2016 Aug 2;11(8):e0159823.

Caution: Product has not been fully validated for medical applications. For research use only.

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