

Product Data Sheet

Product Name: NNC 55-0396

Cat. No.: GC14417

Chemical Properties

Cas. No. 357400-13-6

Chemical Name 2-(2-((3-(1H-benzo[d]imidazol-2-yl)propyl)(methyl)amino)ethyl)-6-fluoro-1-isopropyl-1,2,3,4-tetrahydronaphthalen-2-yl cyclopropanecarboxylate dihydrochloride

SMILES CC(C1C2=C(C=C(F)C=C2)CCC1(OC(C3CC3)=O)CCN(CCCC4=NC5=CC=CC=C5N4)C)C.Cl.Cl

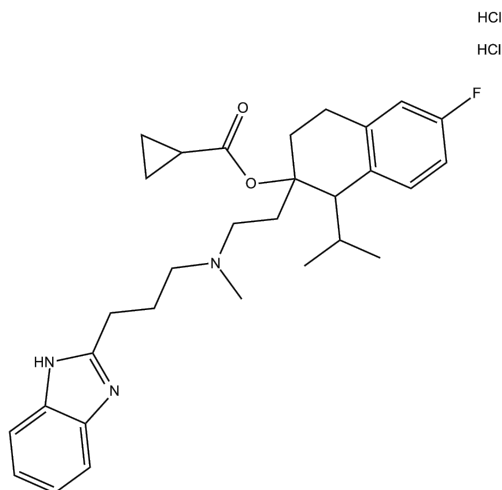
Formula $C_{30}H_{40}Cl_2FN_3O_2$ M.Wt 564.56

Solubility 30mg/mL in ethanol, or in DMSO, in DMF Storage Store at -20°C

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

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

Structure



Background

NNC 55-0396 is a selective inhibitor of T-type calcium channels that blocks Cav3.[1] in stably expressing HEK293 cells (IC₅₀ = 6.8 μM) with no discernible effect on high voltage-activated (L-type)

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

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channels in INS-1 cells up to a concentration of 100 μ M.1 NNC 55-0396 suppresses tremor in two murine models, the GABAA α 1-null (20 mg/kg) and harmaline-induced (12.5 mg/kg) tremor models, and was better tolerated than mibefradil.[2] In arterial smooth muscle cells, NCC 55-0396 (IC₅₀ = 80 nM) inhibits voltage-dependent K⁺ channels but does not affect their voltage sensitivity.[3] NNC 55-0396 (1-5 μ M) also suppresses angiogenesis in vitro by inhibiting hypoxia-inducible factor-1 α activity, and it slows tumor growth of flank xenografts of U87MG cells in mice when administered at 20 mg/kg.[4]

Reference:

- [1]. Huang, L., Keyser, B.M., Tagmose, T.M., et al. NNC 55-0396 [(1S,2S)-2-(2-(N-[(3-benzimidazol-2-yl)propyl]-N-methylamino)ethyl)-6-fluoro-1,2,3,4-tetrahydro-1-isopropyl-2-naphthyl cyclopropanecarboxylate dihydrochloride]: a new selective inhibitor of T-type calcium channels. J. Pharmacol. Exp. Ther. 309(1), 193-199 (2004).
- [2]. Quesada, A., Bui, P.H., Homanics, G.E., et al. Comparison of mibefradil and derivative NNC 55-0396 effects on behavior, cytochrome P450 activity, and tremor in mouse models of essential tremor. Eur. J. Pharmacol. 659(1), 30-36 (2011).
- [3]. Son, Y.K., Hong, D.H., Li, H., et al. Ca²⁺ channel inhibitor NNC 55-0396 inhibits voltage-dependent K⁺ channels in rabbit coronary arterial smooth muscle cells. J. Pharmacol. Sci. 125(3), 312-319 (2014).
- [4]. Kim, K.H., Kim, D., Park, J.Y., et al. NNC 55-0396, a T-type Ca²⁺ channel inhibitor, inhibits angiogenesis via suppression of hypoxia-inducible factor-1 α signal transduction. J. Mol. Med. (Berlin) 93(5), 499-509 (2015).

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