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## Product Data Sheet

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Product Name: A 412997 dihydrochloride

Cat. No.: GC14610

### Chemical Properties

Cas. No. 1347744-96-0

Chemical Name (Z)-2-(4-(pyridin-2-yl)piperidin-1-yl)-N-(m-tolyl)acetimidic acid dihydrochloride

SMILES CC1=CC(/N=C(O)/CN2CCC(C3=CC=CC=N3)CC2)=CC=C1.Cl.Cl

Formula  $C_{19}H_{23}N_3O \cdot 2HCl$  M.Wt 382.33

Solubility <38.23mg/ml in Water; <19.12mg/ml in DMSO Storage Desiccate at RT

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

A 412997 dihydrochloride is a selective agonist of dopamine D4 receptor with  $K_i$  values of 7.9 and 12.1 nM for human and rat D4 receptors, respectively [1].

Dopamine D4 receptor is a G protein-coupled receptor and is activated by dopamine. It plays an important role in cognition, Parkinsons disease, addictive behaviors and so on.

A 412997 dihydrochloride is a selective dopamine D4 receptor agonist. In calcium flux functional assays, A-412997 activated the rat dopamine D4 receptor with  $EC_{50}$  value and intrinsic activity of 28.4 nM and 0.83, respectively [1].

In Spontaneous Hypertensive Rat pups (SHR pups), A 412997 significantly increased acquisition in the 5-trial repeated acquisition model. In the short-term social memory, A 412997 significantly shortened the second investigation time. In Wistar rats and Dawley rats, A 412997 (3  $\mu$ M/kg, 10  $\mu$ M/kg) increased locomotor activity [2]. In rats, A 412997 reduced non-rapid eye movement (NREM) sleep duration and increased waking duration.

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

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Also, A 412997 reduced rapid eye movement (REM) sleep duration and delayed the onset of REM sleep [3].

### References:

- [1]. Moreland RB, Patel M, Hsieh GC, et al. A-412997 is a selective dopamine D4 receptor agonist in rats. *Pharmacol Biochem Behav*, 2005, 82(1): 140-147.
- [2]. Browman KE, Curzon P, Pan JB, et al. A-412997, a selective dopamine D4 agonist, improves cognitive performance in rats. *Pharmacol Biochem Behav*, 2005, 82(1): 148-155.
- [3]. Nakazawa S, Nakamichi K, Imai H, et al. Effect of dopamine D4 receptor agonists on sleep architecture in rats. *Prog Neuropsychopharmacol Biol Psychiatry*, 2015, 63: 6-13.

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