# Product Data Sheet

Product Name: CDP 840 hydrochloride
Cat. No.: GC16632

## Chemical Properties

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|---|---|---|---|
| Cas. No. | 162542-90-7 | | |
| Chemical Name | (R)-4-(2-(3-(cyclopentyloxy)-4-methoxyphenyl)-2-phenylethyl)pyridine hydrochloride | | |
| SMILES | COC1=C(OC2CCCC2)C=C([C@](C3=CC=CC=C3)([H])CC4=CC=NC=C4)C=C1.Cl | | |
| Formula | $C_{25}H_{27}NO_2$.HCl | M.Wt | 409.95 |
| Solubility | <40.99mg/ml in DMSO | Storage | Desiccate at RT |
| General tips | For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ 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 | CDP 840 hydrochloride | | |

## Background

CDP 840 is a selective phosphodiesterase type IV (PDE4) inhibitor [1] [2] [3] with an IC50 value of 0.007 μM [4].

PDE4 is most abundantly distributed in inflammatory cells such as monocytes and macrophages [3]. PDE4 is a high-affinity cAMP-selective isozyme. It was found that PDE4 was in almost all cell types in asthma pathogenesis [2].

CD P840 showed a potent inhibition against PDE4 with IC50 values ranging from 2-30 nM to different isoenzymes of PDE4. There are four expressed PDE4 isoenzymes in baculovirus cells, i.e. PDE4A, PDE4B, PDE4C and PDE4D. Except for PDE4C2, CDP 840 did not exhibit isoform selectivity of PDE4. CD P840 exhibited a hill number of about 1.0 against all four PDE4 isoenzymes. For all four PDE4 isoenzymes, CDP 840 acted as a simple competitive inhibitor [5].


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In vivo, CDP 840 (30 mg/kg) increased cAMP by 145% in the hippocampus and by 112% in the prefrontal cortex of male Sprague-Dawley rats. CDP 840 at doses of 10 and 30 mg/kg increased the phosphorylation of cAMP response element binding protein (pCREB) in the hippocampus (by 36 and 55%, respectively) and in the prefrontal cortex (by 32 and 60%, respectively). But these doses did not affect the expression of the cAMP response element binding protein (CREB). Repeated treatment with CDP 840 at a dose of 30 mg/kg increased the cell proliferation in rat hippocampus, but these cells were not survival [6].

References:

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[2]. Chun Li, Nathalie Chauret, Laird A. Trimble, et al. Investigation of the in vitro metabolism profile of a phosphodiesterase-IV inhibitor, CDP-840: leading to structural optimization. Drug Metabolism and Disposition, 2001, 29:232–241.
[3]. John E. Souness and Sudha Rao. Proposal for Pharmacologically Distinct Conformers of PDE4 Cyclic AMP Phosphodiesterases. Cell. Signal., 1997, 9(3/4):227-236.
[4]. Christopher Hulme, Gregory B. Poli, Fu-Chih Huang, et al. Quaternary substituted PDE4 inhibitors I: the synthesis and in vitro evaluation of a novel series of oxindoles. Bioorganic & Medicinal Chemistry Letters, 1998, 8:175-178.
[5]. M.J. Perry, J. O'Connell, C. Walker, et al. CDP840: a novel inhibitor of PDE-4. Cell Biochem. Biophys., 1998, 29(1-2):113-32.
[6]. Lan Xiao, James P. O’Callaghan and James M. O’Donnell. Effects of Repeated Treatment with Phosphodiesterase-4 Inhibitors on cAMP Signaling, Hippocampal Cell Proliferation, and Behavior in the Forced-Swim Test. J. Pharmacol. Exp. Ther., 2011, 338(2):641-7.


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