Product Data Sheet

Product Name: (S)-CPW 399
Cat. No.: GC17313

Chemical Properties

Cas. No.	389888-02-2		
Chemical Name	(S)-2-amino-3-(2,4-dioxo-2,3,4,5,6,7-hexahydro-1H-cyclopenta[d]pyrimidin-1-yl)propanoic acid		
SMILES	O=C1NC(N(C[C@@H](C(O)=O)N)C2=C1CCC2)=O		
Formula	$C_{10}H_{13}N_3O_4$	M.Wt	239.23
Solubility	<11.96mg/ml in Water	Storage	Desiccate at -20°C
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	(S)-CPW 399		

Background

(S)-CPW 399 is a potent and selective agonist of AMPA receptor with Ki value of 747 nM [1].

The α-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid receptor (AMPA receptor) is an ionotropic transmembrane receptor for glutamate and mediates fast synaptic transmission in the central nervous system. AMPA receptors are oligomeric assemblies of four protein subunits, GluR1-4.

(S)-CPW 399 is a potent and selective AMPA receptor agonist. (S)-CPW 399 exhibited affinity with Ki values of 109, 218, 2137 and 1756 nM for GluR1, GluR2, GluR3 and GluR4 receptors, respectively [1]. In mouse cerebellar granule cells, (S)-CPW 399 induced neuronal cell death in a concentration- and time-dependent way with EC50 value of 70 μM and increased intracellular free-calcium levels ([Ca2+]i) in a concentration-dependent way with EC50 value of 5 μM [2]. In rat cerebellar granule cells, CPW-399 increased the expression of GABAA receptor δ subunit, which relied on NMDA receptor

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activation [3]. In Sf9 cells expressing iGluR5, (S)-CPW 399 exhibited affinity for iGluR5 with Ki value of 44 nM. In Xenopus læVis Oocytes, (S)-CPW 399 exhibited agonist activity with EC50 values of 24.9, 13.9, 224 and 34.3 μM for iGluR1, iGluR2, iGluR3 and iGluR4 receptors, respectively [4].

References:

[1]. Campiani G, Morelli E, Nacci V, et al. Characterization of the 1H-cyclopentapyrimidine-2,4(1H,3H)-dione derivative (S)-CPW399 as a novel, potent, and subtype-selective AMPA receptor full agonist with partial desensitization properties. J Med Chem, 2001, 44(26): 4501-4504.

[2]. Sinclair C, Reavy H, Grieve A, et al. Inherent desensitisation-preventing properties of a novel, subtype-selective AMPA receptor agonist, (S)-CPW 399, as a possible explanation for its excitotoxic action in cultured cerebellar granule cells. Neurochem Int, 2003, 42(6): 499-510.

[3]. Salonen V, Kallinen S, Lopez-Picon FR, et al. AMPA/kainate receptor-mediated up-regulation of GABAA receptor delta subunit mRNA expression in cultured rat cerebellar granule cells is dependent on NMDA receptor activation. Brain Res, 2006, 1087(1): 33-40.

[4]. Butini S, Pickering DS, Morelli E, et al. 1H-cyclopentapyrimidine-2,4(1H,3H)-dione-related ionotropic glutamate receptors ligands. structure-activity relationships and identification of potent and Selective iGluR5 modulators. J Med Chem, 2008, 51(20): 6614-6618.