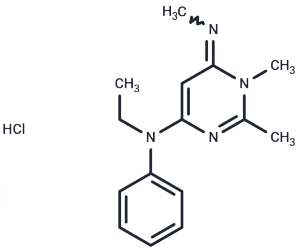
Data Sheet (Cat.No.T7516)

TargetMol

ZD7288

Chemical Properties



CAS No. :	133059-99-1
Formula:	C15H21ClN4
Molecular Weight:	292.81
Storage:	Powder: -20°C for 3 years | In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA.

Biological Description

Description	ZD7288 (ICI D7288), a selective hyperpolarization-activated cyclic nucleotide-gated channel blocker, inhibits hippocampal synaptic plasticity.
Targets(IC50)	HCN Channel
In vitro	ZD7288 attenuated glutamate-induced rises in [Ca(2+)]i in a concentration-dependent manner and reversed 8-Br-cAMP-mediated facilitation of these glutamate-induced [Ca(2+)]i rises.?ZD7288 inhibits hippocampal synaptic plasticity both glutamate release and resultant [Ca(2+)]i increases in rat hippocampal neurons[1].
Cell Research	Cultured hippocampal neurons were incubated with 1 μM Fura-2 acetoxy-methylol ester for 30 minutes at 37°C, washed three times with artificial cerebrospinal fluid (containing 140 mM NaCl, 5 mM KCl, 2 mM CaCl2, 1 mM MgCl2, 10 mM glucose and 10 mM hydroxyethyl piperazine ethanesulfonic acid, pH 7.3), and then incubated at room temperature in the dark for 30 minutes.?Fura-2 fluorescence was observed by a Ratio Vision digital fluorescence microscopy system.?Fluorescence signals were evoked by 340 and 380 nm excitation wavelengths and collected at 510 nm by TILLvisION 4.0 software.?The 340:380 nm fluorescence ratio was used to represent [Ca2+]i.?Peak calcium change was represented as the percentage increase from baseline.?Neurons were incubated in ZD7288 (25, 50 or 100 μM) or 8-Br-cAMP (5 or 50 μM) for 15 minutes prior to stimulation with 50 μM glutamate.?All experiments were repeated in triplicate, using different batches of cells across 4-5 dishes[1].

Solubility Information

Solubility	DMSO: 225 mg/mL (768.42 mM),Sonication is recommended. H2O: 50 mg/mL (170.76 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Saline: 10 mg/mL (34.15 mM),Solution. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.4152 mL	17.0759 mL	34.1518 mL
5 mM	0.683 mL	3.4152 mL	6.8304 mL
10 mM	0.3415 mL	1.7076 mL	3.4152 mL
50 mM	0.0683 mL	0.3415 mL	0.683 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Zhang X X , Min X C , Xu X L , et al. ZD7288, a selective hyperpolarization-activated cyclic nucleotide-gated channel blocker, inhibits hippocampal synaptic plasticity[J]. 2016, 011(005):779-786.
Yin J, Li Y, Li D, et al.Upregulation of HCN 2 in ventral tegmental area is involved in morphine-induced conditioned place preference in rats.FEBS Open Bio..2024
Pirtle T J , Carr T L , Khurana T , et al. ZD7288 and mibefradil inhibit the myogenic heartbeat in, Daphnia magna, indicating its dependency on HCN and T-type calcium ion channels[J]. Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology, 2018, 222:36-42.