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Lieferung & Zahlungsart

siehe unsere Liefer- und Versandbedingungen

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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ZD7288

Cat. No.: HY-101346

CAS No.: 133059-99-1

Molecular Formula: $C_{15}H_{21}ClN_4$

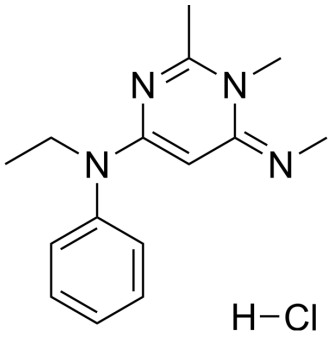
Molecular Weight: 292.81

Target: HCN Channel

Pathway: Membrane Transporter/Ion Channel

Storage: 4°C, sealed storage, away from moisture

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (170.76 mM; Need ultrasonic)

H_2O : ≥ 50 mg/mL (170.76 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.4152 mL	17.0759 mL	34.1518 mL
5 mM	0.6830 mL	3.4152 mL	6.8304 mL
10 mM	0.3415 mL	1.7076 mL	3.4152 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (341.52 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

ZD7288 (ICI D7288) is a selective hyperpolarization-activated cyclic nucleotide-gated (HCN) channel blocker[1].

IC_{50} & Target

HCN channel[1]

In Vitro

ZD7288 is a selective hyperpolarization-activated cyclic nucleotide-gated (HCN) channel blocker. ZD7288 inhibits glutamate release in a concentration-dependent manner. After incubation with 1, 5 and 50 μM ZD7288 for 24 hours, glutamate content in extracellular fluid is decreased to 69.0±2.8%, 31.4±2.0% and 4.4±0.3%, respectively (P<0.01, vs. DMEM/F12 group [100.2±4.2%]). After incubation with ZD7288 (25, 50, or 100 μM) for 20 minutes, 50 μM glutamate-induced $[Ca^{2+}]_i$ rises are attenuated to 59.2±2.7%, 41.4±2.3% and 21.0±1.4%, respectively glutamate (P<0.01, vs. 50 μM glutamate group)[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Application of ZD7288 0.1 μM at 5 minutes before high-frequency stimulation significantly decreases the amplitude of field

	excitatory postsynaptic potentials (fEPSPs), and this inhibitory effect is maintained throughout the recording period. Application of 0.1 μM ZD7288 30 minutes after high-frequency stimulation almost completely reverses the established long-term potentiation (LTP). Following application of ZD7288 (0.1 μM) 5 minutes before high-frequency stimulation, glutamate content is reduced to 74.9±8.0% (P<0.05, vs. normal saline group). Furthermore, application of 0.1 μM ZD7288 30 minutes after high-frequency stimulation markedly decreases the glutamate content to 77.0%±9.4% (P<0.05, vs. normal saline group)[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	Primary hippocampal neurons are obtained from neonatal (1 to 2 day-old) Sprague-Dawley rats, and used in this study. The cells are incubated for 24 hours with ZD7288 (1, 5, or 50 μM), 8-bromoadenosine cyclic adenosine monophosphate (8-Br-cAMP, 5 or 50 μM), or forskolin (1 or 5 μM), and the culture medium is collected for glutamate measurement[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	Specific-pathogen-free adult male Sprague-Dawley rats, aged 10 weeks and weighing 200±20 g are used in this study. For hippocampal administration of saline or drugs, a cannula is carefully inserted into the CA3 area with an introductory tube fixed parallel to the recording electrode, reaching 0.1 to 0.2 mm higher than the electrode tip. To test the effects of blockers on the induction of long-term potentiation (LTP), 0.1 μM ZD7288 or the monovalent cation cesium (Cs^+) is applied 5 minutes before high-frequency stimulation. To test the effects of blockers on the maintenance of LTP, ZD7288/Cs^+ is slowly administered using an infusion/withdrawal pump 30 minutes after the high-frequency stimulation[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- J Headache Pain. 2023 Apr 21;24(1):44.
- J Affect Disorders. 2022 Dec 29;324:143-152.
- Neuropharmacology. 2020 Oct 1;176:108222.
- bioRxiv. 2023 Mar 5.
- Research Square Print. October 6th, 2022.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Zhang XX, et al. ZD7288, a selective hyperpolarization-activated cyclic nucleotide-gated channel blocker, inhibits hippocampal synaptic plasticity. Neural Regen Res. 2016 May;11(5):779-86.

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