A 839977

Cat. No.: HY-13954

CAS No.: 870061-27-1

Molecular Formula: $C_{19}H_{14}Cl_2N_6O$

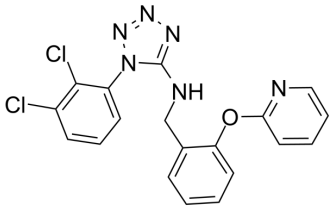
Molecular Weight: 413.26

Target: P2X Receptor

Pathway: Membrane Transporter/Ion Channel

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (241.98 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.4198 mL	12.0989 mL	24.1978 mL
5 mM	0.4840 mL	2.4198 mL	4.8396 mL
10 mM	0.2420 mL	1.2099 mL	2.4198 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (6.05 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (6.05 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.05 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

A 839977 is a P2X7 selective antagonist; it blocks BzATP-evoked calcium influx at recombinant human, rat and mouse P2X7 receptors (IC_{50} values are 20 nM, 42 nM and 150 nM respectively) and reduces inflammatory and neuropathic pain in animal models; the antihyperalgesic effects of P2X7 receptor blockade are mediated by blocking the release of IL-1beta[1].

IC_{50} & Target

IC50: of 20 nM (human P2X7 receptor), 42 nM (rat P2X7 receptor), 150 nM (mouse P2X7 receptor)[1]

In Vitro

A 839977 selectively blocks BzATP-evoked calcium influx at mammalian P2X7 receptors, (IC_{50}=20-150 nM), which blocks

agonist-evoked YO-PRO uptake and IL-1beta release from differentiated human THP-1 cells, it has been shown to reduce inflammatory and neuropathic pain in animal models[1].
A 839977 (50 nM, pre-treatment 1 hour) significantly prevents pressure-induced rise of IL-1β priming in optic nerve astrocytes[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

RT-PCR[2]

Cell Line:	Optic nerve astrocyte cells
Concentration:	50 nM
Incubation Time:	1 hour(pre-treatment)
Result:	Prevented the IL-1β priming in astrocyte cells

In Vivo

A 839977 (30 μmol/kg, 100 μmol/kg, 300 μmol/kg; pre-injected 30mins) dose-dependently reduces thermal hyperalgesia produced by intraplantar administration of complete Freund's adjuvant (CFA) in rats[1].
A 839977 (10 μmol/kg, 30 μmol/kg, 100 μmol/kg; pre-injected 30mins) produces robust antihyperalgesia in the CFA model of inflammatory pain in wild-type mice, but it has no effect on IL-1alphabeta knockout mice[1].
A 839977 attenuates dorsal horn neuronal responses in cancer bearing animals[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male Sprague-Dawley, BALB/c mice and IL-1 $^{(-/-)}$ mice for CFA-induced chronic inflammatory
Dosage:	30 μmol/kg, 100 μmol/kg, 300 μmol/kg (rat); 10 μmol/kg, 30 μmol/kg, 100 μmol/kg (mice)
Administration:	Injection; pre-injected 30mins
Result:	Attenuated CFA-induced thermal hyperalgesia in a dose-related manner in rat and mice, but has no effect on IL-1 $^{(-/-)}$ mice.

CUSTOMER VALIDATION

- Part Fibre Toxicol. 2018 Oct 19;15(1):39.

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REFERENCES

[1]. Honore P, et al. The antihyperalgesic activity of a selective P2X7 receptor antagonist, A-839977, is lost in IL-1alphabeta knockout mice. Behav Brain Res. 2009 Dec 1;204(1):77-81.

[2]. Albalawi F et.al, The P2X7 Receptor Primes IL-1β and the NLRP3 Inflammasome in Astrocytes Exposed to Mechanical Strain. Front Cell Neurosci. 2017 Aug 8;11:227

[3]. Falk S et al.P2X7 receptor-mediated analgesia in cancer-induced bone pain. Neuroscience. 2015 Apr 16; 291:93-105.

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

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