PPADS tetrasodium

Cat. No.: HY-101044

CAS No.: 192575-19-2

Molecular Formula: $C_{14}H_{10}N_3Na_4O_{12}PS_2$

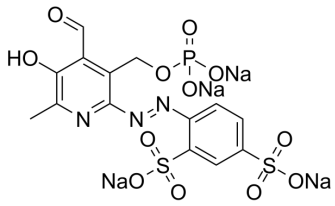
Molecular Weight: 599

Target: P2X Receptor; Na+/Ca2+ Exchanger

Pathway: Membrane Transporter/Ion Channel

Storage: -20°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

H_2O : 50 mg/mL (83.47 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.6694 mL	8.3472 mL	16.6945 mL
	5 mM	0.3339 mL	1.6694 mL	3.3389 mL
	10 mM	0.1669 mL	0.8347 mL	1.6694 mL

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

BIOLOGICAL ACTIVITY

Description

PPADS tetrasodiuma is a non-selective P2X receptor antagonist. PPADS tetrasodiuma blocks recombinant P2X1, -2, -3, -5 with IC_{50}s ranging from 1 to 2.6 μM. PPADS tetrasodiuma blocks native P2Y2-like (IC_{50}~0.9 mM) and recombinant P2Y4 (IC_{50} ~15 mM) receptors. PPADS tetrasodiuma is an inhibitor of the reverse mode of the Na/Ca^{2+} exchanger in guinea pig airway smooth muscle[1][2].

In Vitro

PPADS tetrasodiuma (1-30 μM; 10-50 minutes) inhibits Na+/Ca2+ exchanger reverse mode (NCXREV) in a time- and concentration dependent manner[2].

PPADS tetrasodiuma is effective at other native and recombinant P2XRs. At human P2XRs sensitivity to PPADS tetrasodiuma depended on the subtype and is highest at the hP2X1, -2, -3, -5, and -7Rs with an IC_{50} of ~1-3 and ~30 μM for the hP2X4R[3].

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

In Vivo

PPADS tetrasodiuma (15-60 mg/100g body weight (BW); i.p.; every 12 hours for 8 days) inhibits glomerular mesangial cells (MC) proliferation without altering proliferation of non-MC in vivo in mesangial proliferative glomerulonephritis[4].

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

Animal Model:	Male Sprague-Dawley ratsweighing 160 to 200 g (anti-Thy1 disease mode)[4]
Dosage:	15 mg/100g BW, 30 mg/100g BW, 60 mg/100g BW
Administration:	i.p.; every 12 hours for 8 days (the first PPADS injection was administered 60 minutes after disease induction, and the loading dose always contained double the amount of PPADS compared to the following injections.)
Result:	Specifically and dose-dependently reduced early (day 3) glomerular mesangial cell proliferation without altering proliferation of non-MC.

CUSTOMER VALIDATION

- J Biol Chem. 2021 Sep 3;101166.

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REFERENCES

[1]. Flores-Soto E, et al. PPADS, a P2X receptor antagonist, as a novel inhibitor of the reverse mode of the Na⊠/Ca^{2}⊠ exchanger in guinea pig airway smooth muscle. Eur J Pharmacol. 2012 Jan 15;674(2-3):439-44.

[2]. Huo H, et al. Mapping the binding site of the P2X receptor antagonist PPADS reveals the importance of orthosteric site charge and the cysteine-rich head region. J Biol Chem. 2018 Aug 17;293(33):12820-12831.

[3]. Einfluss von ATP und seinen Derivaten auf die Aktivierung von Monozyten.

[4]. Rost S, et al. P2 receptor antagonist PPADS inhibits mesangial cell proliferation in experimental mesangialproliferative glomerulonephritis. Kidney Int. 2002 Nov;62(5):1659-71.

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