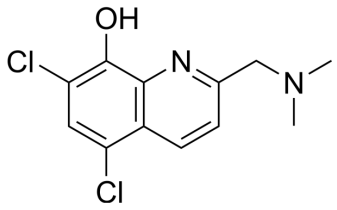
PBT 1033

Cat. No.:	HY-105321
CAS No.:	747408-78-2
Molecular Formula:	$C_{12}H_{12}Cl_2N_2O$
Molecular Weight:	271.14
Target:	Bacterial
Pathway:	Anti-infection
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (368.81 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.6881 mL	18.4407 mL	36.8813 mL
	5 mM	0.7376 mL	3.6881 mL	7.3763 mL
	10 mM	0.3688 mL	1.8441 mL	3.6881 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (9.22 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

PBT 1033 (PBT 2) is an orally active copper/zinc ionophore. PBT 1033 restores cognition in mouse models of Alzheimer's disease (AD). PB 1033 also has antibacterial activity against Gram-positive bacteria[1][2].

In Vitro

PB 1033 displays antibacterial activity against S. uberis, with a MIC value of 14.5 μM[2].
PBT2 (1, 3 and 7.5 μM, 6 h) protects neurons against glutamate-induced excitotoxicity[3].
PBT2 (10 μM, 1 or 6 h) reduces NMDAR-mediated Ca2+ flux in mouse cortical neurons[3].
PBT2 (0-10 μM, 1 h) increases GSK3α/β phosphorylation in SH-SY5Y cells[4].
PBT2 (20 μM, 1 h) prevents the formation of Zn-induced protease resistant Aβ aggregates[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[4]

Cell Line:	SH-SY5Y cells
Concentration:	0-10 μM
Incubation Time:	1 h
Result:	Increased in cellular levels of GSK3α/β phosphorylated at the inhibitory serine 21/9 residue (ser21/9 on GSK3α/β).

In Vivo

PBT 1033 (30 mg/kg/d, p.o., 11 days) restores biochemical substrates of learning/memory in a mouse model of alzheimer's disease[5].

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

Animal Model:	Female Tg2576 mice[5]
Dosage:	30 mg/kg/d
Administration:	Oral administration, 11 days
Result:	Increased hippocampal apical spine density, basal spine density.

REFERENCES

[1]. Faux NG, et al. PBT2 rapidly improves cognition in Alzheimer's Disease: additional phase II analyses. J Alzheimers Dis. 2010;20(2):509-16.

[2]. Harbison-Price N, et al. Multiple Bactericidal Mechanisms of the Zinc Ionophore PBT2. mSphere. 2020 Mar 18;5(2):e00157-20.

[3]. Johanssen T, et al. PBT2 inhibits glutamate-induced excitotoxicity in neurons through metal-mediated preconditioning. Neurobiol Dis. 2015 Sep;81:176-85.

[4]. Crouch PJ, et al. The Alzheimer's therapeutic PBT2 promotes amyloid-β degradation and GSK3 phosphorylation via a metal chaperone activity. J Neurochem. 2011 Oct;119(1):220-30.

[5]. Adlard PA, et al. Metal ionophore treatment restores dendritic spine density and synaptic protein levels in a mouse model of Alzheimer's disease. PLoS One. 2011 Mar 11;6(3):e17669.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA