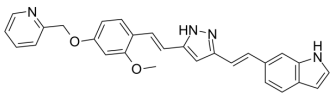
PE859

Cat. No.:	HY-12662
CAS No.:	1402727-29-0
Molecular Formula:	$C_{28}H_{24}N_4O_2$
Molecular Weight:	448.52
Target:	Microtubule/Tubulin
Pathway:	Cell Cycle/DNA Damage; Cytoskeleton
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 : 50 mg/mL (111.48 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.2296 mL	11.1478 mL	22.2956 mL
	5 mM	0.4459 mL	2.2296 mL	4.4591 mL
	10 mM	0.2230 mL	1.1148 mL	2.2296 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 (5.57 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.57 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	PE859 is a potent inhibitor of both tau and Aβ aggregation with IC_{50} values of 0.66 and 1.2 μM, respectively.
IC_{50} & Target	IC50: 0.66 μM (tau), 1.2 μM (Aβ)[1]
In Vitro	PE859 inhibits the heparin-induced aggregation of both 3RMBD and full length tau in a concentration-dependent manner. In each assay, the IC_{50} values calculated at the last measurement periods are 0.81 μM, and 2.23 μM, respectively. PE859 inhibits tau aggregation through formation of beta-sheet structure[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	PE859 could cross the blood-brain barrier and that PE859 could be distributed into the tissues of the central nervous system.

	The maximum concentration of PE859 is 2.005 μg/mL in the blood at 3 h and 1.428 μg/g in the brain at 6 h. PE859 delays onset and progression of the motor dysfunction in JNPL3 mice. PE859 delays progression of the motor dysfunction through the inhibition of accumulation of sarkosyl-insoluble tau. [2] MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Kinase Assay [2]	Tau aggregation is monitored using thioflavin T. The test compound (PE859), 10 μM 3RMBD and 10 μM heparin are dissolved in 50 mM Tris-HCl (pH7.6), and incubated at 37°C up to 144 hours. At each point of incubation time, 135 μL of the solutions are removed and mixed with 15 μL of 100 μM ThT solution (final concentration: 10 μM) and the fluorescence intensity with excitation at 440 nm and emission at 486 nm is measured[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	Mice: PE859 is dissolved in 80% PEG400 and 20% water solution at 5 mg/mL, and orally-administered at a dose of 40 mg/kg/day for 6 months (from 9 to 15 months of age). The body weights of the mice are measured once a week during PE859 treatment[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Elife. 2019 Mar 25;8:e45457.

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REFERENCES

[1]. Okuda M, et al. Design and synthesis of curcumin derivatives as tau and amyloid β dual aggregation inhibitors. Bioorg Med Chem Lett. 2016 Oct 15;26(20):5024-5028.

[2]. Okuda M, et al. PE859, a novel tau aggregation inhibitor, reduces aggregated tau and prevents onset and progression of neural dysfunction in vivo. PLoS One. 2015 Feb 6;10(2):e0117511.

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

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