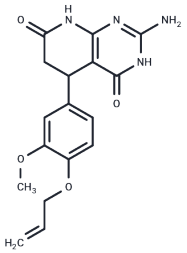
Data Sheet (Cat.No.T41005)

TargetMol

PA-8

Chemical Properties



CAS No. : 878437-15-1

Formula: C17H18N4O4

Molecular Weight: 342.35

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	PA-8 is a small molecule receptor antagonist for PACAP Type I (PAC1) that is selective, effective, and orally active. PA-8 inhibits PacAP-induced CREB phosphorylation at PAC1-receptors, but does not inhibit VPAC1- or vpac2 receptors. PA-8 also inhibited PacAP-induced elevation of cAMP levels in vitro (IC50 = 2 nM) and PacAP-induced aversive response and mechanical atopic pain after intrathecal injection in vivo.
Targets(IC50)	PACAP
In vitro	In PAC1/CHO cells, PA-8 (10 pM to 10 nM; 30 minutes) dose-dependently inhibits PACAP (1 nM)-induced CREB phosphorylation. In VPAC1/CHO and VPAC2/CHO cells, PACAP (1 nM) also induces CREB phosphorylation; however, PA-8 (10 pM to 10 nM) does not inhibit this effect [1].
In vivo	Treatment with PA-8 (100 pmol/5 μL; via intrathecal injection; single dose; in male ddY mice) effectively suppresses PACAP-induced aversive reactions and mechanical allodynia in vivo [1]. Additionally, oral administration of PA-8 (3-30 mg/kg) leads to a dose-dependent reduction in the second phase of formalin-induced pain responses. PA-8 also significantly reduces c-fos expression in the spinal cord's ipsilateral dorsal horn [2]. This showcases PA-8's potential in mitigating nociceptive behaviors and neuronal activation in a PACAP-administered male ddY mouse model (6 weeks old; 100 pmol PACAP) [1], confirming its analgesic and anti-allodynic effects in vivo.

Solubility Information

Solubility	DMSO: 22.5 mg/mL (65.72 mM),Sonication and heating to 60℃ are recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (5.84 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.921 mL	14.6049 mL	29.2099 mL
5 mM	0.5842 mL	2.921 mL	5.842 mL
10 mM	0.2921 mL	1.4605 mL	2.921 mL
50 mM	0.0584 mL	0.2921 mL	0.5842 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Ichiro Takasaki, et al. In Silico Screening Identified Novel Small-molecule Antagonists of PAC1 Receptor. J Pharmacol Exp Ther. 2018 Apr;365(1):1-8.

Takasaki I, Nakamura K, Shimodaira A, et al. The novel small-molecule antagonist of PAC1 receptor attenuates formalin-induced inflammatory pain behaviors in mice. J Pharmacol Sci. 2019;139(2):129-13