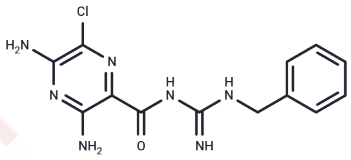
Data Sheet (Cat.No.T5850)

TargetMol

Benzamil

Chemical Properties



CAS No. : 2898-76-2

Formula: C13H14ClN7O

Molecular Weight: 319.75

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	Benzamil is an epithelial sodium channel (ENaC) blocker that inhibits sodium transport from (IC50 = 4 nM) and binds to (Kd = 5 nM) bovine kidney cortex membrane vesicles.
Targets(IC50)	Na+/Ca2+ Exchanger,Sodium Channel
In vivo	nd also examined the role of ASICs on modulation of neuropathic pain.?Neuropathic pain was induced by L4-5 spinal nerve ligation in male Sprague-Dawley rats weighing 100-120 g, and intrathecal catheterization was performed for drug administration.?The effects of amiloride and benzamil were measured by the paw-withdrawal threshold to a mechanical stimulus using the up and down method.?The expression of ASICs in the spinal cord dorsal horn was also analyzed by RT-PCR.?Intrathecal amiloride and benzamil significantly increased the paw withdrawal threshold in spinal nerve-ligated rats (87%±12% and 76%±14%, P=0.007 and 0.012 vs vehicle, respectively).?Spinal nerve ligation increased the expression of ASIC3 in the spinal cord dorsal horn (P=0.01), and this increase was inhibited by both amiloride and benzamil (P<0.001 in both).? Intrathecal amiloride and benzamil display antinociceptive effects in the rat spinal nerve ligation model[1].
Animal Research	On the day of the experiment, rats were allocated into experimental and control groups for the tested drugs.?Control groups were performed using intrathecal DMSO (n=5) or methanol (n=5) according to the solvent used for the tested drugs.?All experiments were performed by investigators blinded to the treatment.?To assess the effects of both drugs, increasing doses of amiloride (1, 3, 10 μg in 10 μL, n=5-7) or benzamil (3, 10, 30 μg in 10 μL, n=5-7) were investigated.?The withdrawal threshold was measured prior to spinal nerve ligation and was regarded as pre-ligated threshold.?The withdrawal threshold was measured immediately prior to intrathecal drug delivery and was regarded as a post-ligated baseline threshold.?The withdrawal threshold was determined at 15, 30, 60, 90, 120, 150, and 180 min following intrathecal administration of the experimental drugs.For the purpose of examining the behavioral changes by amiloride and benzamil, the highest dose of each drug was administered intrathecally to 10 additional rats.?Motor function was assessed by the righting reflex and placing-stepping reflex[1].

Solubility Information

Solubility	DMSO: 3.2 mg/mL (10.01 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.1274 mL	15.6372 mL	31.2744 mL
5 mM	0.6255 mL	3.1274 mL	6.2549 mL
10 mM	0.3127 mL	1.5637 mL	3.1274 mL
50 mM	0.0625 mL	0.3127 mL	0.6255 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

Jeong S , Lee S H , Kim Y O , et al. Antinociceptive Effects of Amiloride and Benzamil in Neuropathic Pain Model Rats [J]. Journal of Korean Medical Science, 2013, 28(8).

Nishimura M , Ohtsuka K , Nanbu A , et al. Benzamil blockade of brain Na+ channels averts Na(+)-induced hypertension in rats.[J]. American Journal of Physiology, 1998, 274(2):635-44.