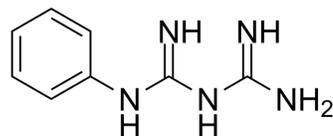


Phenylbiguanide

Cat. No.:	HY-101331		
CAS No.:	102-02-3		
Molecular Formula:	C ₈ H ₁₁ N ₅		
Molecular Weight:	177.21		
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 : 150 mg/mL (846.45 mM; Need ultrasonic)
 H₂O : ≥ 25 mg/mL (141.08 mM)
 * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	5.6430 mL	28.2151 mL	56.4302 mL
	5 mM	1.1286 mL	5.6430 mL	11.2860 mL
	10 mM	0.5643 mL	2.8215 mL	5.6430 mL

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

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (14.11 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (14.11 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (14.11 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Phenylbiguanide is a 5-HT₃ receptor selective agonist with an EC₅₀ of 3.0±0.1 μM.

IC₅₀ & Target

EC₅₀: 3.0±0.1 μM (5-HT₃ Receptor)^[1]

In Vitro

Phenylbiguanide (1-Phenylbiguanide) is a 5-HT₃ receptor selective agonist with pEC₅₀s of 5.57, 4.07, and 4.47 for r5-HT_{3A(b)}, h5-HT_{3A}, m5-HT_{3A(b)}, respectively^[1]. The effect of Phenylbiguanide (1-Phenylbiguanide hydrochloride) in promoting the growth of the HT29 cell line is investigated. Phenylbiguanide causes a dose dependent proliferation of HT29 cells after 48

hours incubation. The maximum proliferation is at a 5HT concentration of 12.5 μM ($P \leq 0.01$). Phenylbiguanide significantly stimulates the growth of cells at concentrations of 3.125 μM ($P \leq 0.05$) and 6.25 μM ($P \leq 0.01$)^[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

In anaesthetised mice, Phenylbiguanide (PBG), a drug that is known to stimulate cardiopulmonary afferent C-fibres, is injected into the right atrium of the heart and mapped c-Fos expression within specific regions of the central nervous system. Intraatrial injection of PBG produces a reflex cardiorespiratory response including a pronounced bradycardia and a respiratory depression^[3].
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PROTOCOL

Cell Assay^[2]

HT29 cells are washed with Phosphate buffer saline (PBS) and harvested with a 0.5% trypsin solution at 50-60% confluency. Cells are then added to wells at a density of 104 cells/well in a 96-well plate to a final volume of 100 μL /well. After 24 hours of incubation at 37°C in a 5% CO_2 atmosphere, the culture medium is replaced with 200 μL fresh culture medium containing 5HT hydrochloride, Phenylbiguanide hydrochloride at concentrations of: 3.125, 6.25, 12.5, 25, 50, and 100 μM . Cells cultured solely in media served as negative controls. After 48 hours of incubation at 37°C in a 5% CO_2 atmosphere, the culture medium is removed and 8 μL MTT reagent (diluted in PBS at a concentration of 4 mg/mL) is added to 50 μL of fresh culture medium at a final concentration of 0.55 mg/mL. The optimum incubation period time is determined in a pilot study^[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Administration^[3]

Mice^[3]
Adult male specified pathogen free (SPF) BALB/c mice (28-33 g; n=10) are used throughout this study. All mice have free access to water and food in a light (12: 12 h light/ dark cycle, lights on at 0700 h) and temperature-controlled (21-23°C) environment. Mice are randomly assigned to two treatment groups, 1) intra-atrial injection of 0.9% saline (controls, n=5) or 2) intra-atrial injection of vehicle containing Phenylbiguanide (n=5). For the PBG injected group, mice are injected with an effective dose of Phenylbiguanide (1-1.5 μg in 10-15 μL saline). This is repeated five times in total with each injection separated by 8-10 min. For control mice, each mouse receives five saline injections (10-15 μL each), also at 8-10 min intervals^[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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

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