Hcyb1

Cat. No.: HY-132993

CAS No.: 2988566-71-6

Molecular Formula: $C_{24}H_{20}N_4O$

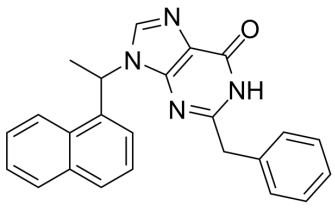
Molecular Weight: 380.44

Target: Phosphodiesterase (PDE)

Pathway: Metabolic Enzyme/Protease

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 : 62.5 mg/mL (164.28 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.6285 mL	13.1427 mL	26.2854 mL
	5 mM	0.5257 mL	2.6285 mL	5.2571 mL
	10 mM	0.2629 mL	1.3143 mL	2.6285 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: ≥ 2.08 mg/mL (5.47 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (5.47 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Hcyb1 is a highly selective, orally active PDE2 inhibitor. Hcyb1 has a highly selective inhibition of PDE2A (IC_{50}=0.57 μM) and over 250-fold selectivity against other recombinant PDE family members. Hcyb1 produces neuroprotective and antidepressant‐like effects most likely mediated by cAMP/cGMP-CREB-BDNF signaling[1].

IC_{50} & Target

PDE2

In Vitro

Hcyb1 (1~100 nM; 10 minutes) increases cGMP levels by 1.7~2.3 folds[1].
Hcyb1 (1 nM; 24 hours) increases both cGMP and cAMP levels[1].
Hcyb1 (24 hours) treatment also increases the levels of phosphorylation of CREB and BDNF in HT-22 cells[1].
Hcyb1 promotes HT-22 cell viability and increase the cGMP and cAMP accumulation in HT-22 cells[1].

Hcyb1 exhibits the concentration- and time-dependent effects on cell viability in HT-22 cells[2].

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

Cell Proliferation Assay[1]

Cell Line:	HT-22 cells
Concentration:	1 pM, 0.01 nM, 0.1 nM, 1 nM, 0.01 μM, 0.1 μM, 1 μM, 10 μM
Incubation Time:	24 hours
Result:	The cell viability was significantly increased when treatment HT-22 cells with Hcyb1 at concentrations of 0.1 nM and 1 nM for 24 hours. The time-dependent effects showed that the cell viability was significantly increased from 12 to 24 hours when treatment at concentration of 1 nM. The maximal effects peaked at 24 hours after treatment.

Western Blot Analysis[1]

Cell Line:	HT-22 cells
Concentration:	1 nM
Incubation Time:	24 hours
Result:	Induced a significant increase in the phosphorylation of CREB. BDNF expression was also significantly upregulated at the same concentration.

In Vivo

Hcyb1 (0.5, 1, and 2 mg/kg, i.g.) decreases the immobility time in both forced swimming and tail suspension tests, without altering locomotor activity[3].

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

Animal Model:	Male imprinting control region (ICR) mice, weighing between 20 and 25 g[3]
Dosage:	0.5, 1, and 2 mg/kg
Administration:	Gavage (i.g.)
Result:	Exhibited dose-dependent reduction in immobility time at doses of 0.5, 1, 2 mg/kg (i.g.).

REFERENCES

[1]. Li Liu, et al. The neuroprotective and antidepressant-like effects of Hcyb1, a novel selective PDE2 inhibitor. CNS Neurosci Ther. 2018 Jul;24(7):652-660.

[2]. Meng-Jia Zhu, et al. Phosphodiesterase 2 inhibitor Hcyb1 reverses corticosterone-induced neurotoxicity and depression-like behavior. Psychopharmacology (Berl). 2020 Nov;237(11):3215-3224.

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