Piclamilast

Cat. No.: HY-12887

CAS No.: 144035-83-6

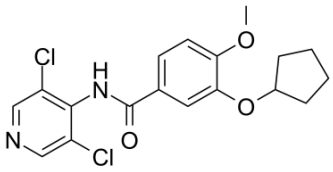
Molecular Formula: $C_{18}H_{18}Cl_2N_2O_3$

Molecular Weight: 381.25

Target: Phosphodiesterase (PDE)

Pathway: Metabolic Enzyme/Protease

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Piclamilast (RP 73401) is a phosphodiesterase 4 (PDE4) inhibitor, with IC_{50} values of 16 nM and 2 nM in pig aorta and eosinophil soluble, respectively[1][2][3][4].

IC_{50} & Target

PDE4 16 nM (IC_{50}, in pig aorta)	PDE4 2 nM (IC_{50}, in eosinophil soluble)	PDE1 >100 μM (IC_{50})	PDE2 40 μM (IC_{50})
PDE3 >100 μM (IC_{50})	PDE5 14 μM (IC_{50})		

In Vitro

Piclamilast (RP 73401, 1 μM, 30 min) significantly inhibits the changes in 23 genes via mechanisms involving AP-1 activation and c-Jun phosphorylation at Ser63[2].

Piclamilast (RP 73401) exhibits IC_{50} values >100 μM, 40 μM, >100 μM, 14 μM for PDE1, PDE2, PDE3 and PDE5. Respectively[4].

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

RT-PCR[2]

Cell Line:	Human A549 type II lung epithelial cells.
Concentration:	1 μM (H_2O_2 200 μM).
Incubation Time:	30 min.
Result:	Prevented H_2O_2 -induced changes in gene expression levels in A549 cells.

Cell Viability Assay[3]

Cell Line:	NB4 cells.
Concentration:	30 μM.
Incubation Time:	3 days.
Result:	Exerted a significant enhancing effect on the induction of STAT1 observed in ATRA-treated NB4 cells. Caused a significant increase in the number of cells expressing NBT-R activity.

In Vivo	Piclamilast (RP 73401, 10 mg/kg, 30 min) alone does not affect the MST of leukemia-bearing animals. Piclamilast combined with ATRA (HY-14649) significantly more effective than ATRA alone in increasing the MST (40 days; interval 34–45 days) of leukemia-bearing animals[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	SCID mice[3].
Dosage:	10 mg/kg (combined with ATRA (HY-14649)).
Administration:	Injection daily.
Result:	Significantly more effective than ATRA alone in increasing the MST (40 days; interval 34–45 days) of leukemia-bearing animals.

REFERENCES

[1]. M J Ashton, et al. Selective type IV phosphodiesterase inhibitors as antiasthmatic agents. The syntheses and biological activities of 3-(cyclopentyloxy)-4-methoxybenzamides and analogues. J Med Chem. 1994 May 27;37(11):1696-703.

[2]. Manuel Mata, et al. Piclamilast inhibits the pro-apoptotic and anti-proliferative responses of A549 cells exposed to H(2)O(2) via mechanisms involving AP-1 activation. Free Radic Res. 2012 May;46(5):690-9.

[3]. Edoardo Parrella, et al. Phosphodiesterase IV inhibition by piclamilast potentiates the cytodifferentiating action of retinoids in myeloid leukemia cells. Cross-talk between the cAMP and the retinoic acid signaling pathways. J Biol Chem . 2004 Oct 1;279(40):42026-40.

[4]. T Ukita, et al. Novel, potent, and selective phosphodiesterase-4 inhibitors as antiasthmatic agents: synthesis and biological activities of a series of 1-pyridylnaphthalene derivatives. J Med Chem. 1999 Mar 25;42(6):1088-99.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA