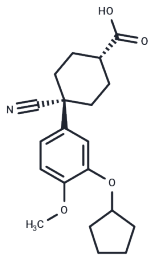
Data Sheet (Cat.No.T6445)

TargetMol

Cilomilast

Chemical Properties



CAS No. : 153259-65-5

Formula: C20H25NO4

Molecular Weight: 343.42

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	Cilomilast (SB-207499) is a potent PDE4 inhibitor with an IC50 of approximately 110 nM, demonstrating anti-inflammatory activity and minimal central nervous system effects. Phase 3.
Targets(IC50)	PDE
In vitro	Cilomilast produces a concentration-dependent increase in cAMP content in U937 cells. Cilomilast produces a concentration-dependent increase in cAMP content in U937 cells. [2] In isolated human monocytes, Cilomilast and (R)-rolipram are equipotent at suppressing LPS-induced TNF-α formation with -log (IC50) of 7.0 and 7.2, respectively. Both Cilomilast and (R)-rolipram produces a modest prevention of fMLP-induced degranulation of human neutrophils. Cilomilast and (R)-rolipram are equipotent at suppressing neutrophil activation with -log (IC50) of 7.1 and 6.4, respectively. [2] Cilomilast significantly decreases the expression of TNF-α in the cornea and IL-1α, IL-1β, and TNF-α in the conjunctivaas compared to vehicle control. Cilomilast treatment markedly decreases the presence of CD11b+ antigen-presenting cells in the central and peripheral cornea, and leads to decreased conjunctival expression of cytokines IL-6, IL-23, and IL-17. Moreover, Cilomilast decreases the expression of IL-17 and IL-23 in the draining lymph nodes. [3] Cilomilast reduces TLR4 expression, IL-8 release and neutrophil chemotactic activity as well as it increased IP-10 release and lymphocyte chemotactic activity. [4]
In vivo	Cilomilast inhibits human TNFα production with oral ED50 of 4.9 mg/kg. In contrast to their equipotent activity against TNFα production, Cilomilast (ED50 = 2.3 mg/kg, p.o.) is 10-fold less potent than R-rolipram (ED50 = 0.23 mg/kg, p.o.) in reversing reserpine-induced hypothermia, a model of antidepressant activity. [1] In time course studies, Cilomilast (30 mg/kg, p.o.) suppresses TNFα production for at least 10 hour. The ability of Cilomilast to modulate interleukin-4 productionin vivo is assessed in a chronic oxazolone-induced contact sensitivity model in Balb/c mice. Topical administration of Cilomilast (1000 μg) inhibits intralesional concentrations of interleukin-4. [1] Orally administered cilomilast dose-dependently inhibits production of interleukin-4, TNF-α, and cysteinyl leukotrienes, as well as leukocyte infiltration in bronchoalveolar lavage fluid from the airways of ovalbumin-sensitized Brown Norway rats [5].
Cell Research	U937 cells (1-2 × 10 6) are incubated at 37 °C in a shaking water bath with Cilomilast for 1 min before the addition of 0.1 μM PGE2 (total volume of 200 μL). The incubation proceeds for an additional 4 min and is stopped by the addition of 0.1 mL of HClO4

Cell Research	(17.5%), neutralized with 0.15 ml of K2</subCO3 (1.0 M) and diluted to 1 mL with sodium acetate buffer. Samples are centrifuged at 3000 × g for 10 min. Aliquots of the supernatant fraction are assayed for cAMP content by radioimmunoassay using commercially available kits.(Only for Reference)

Solubility Information

Solubility	Ethanol: 31 mg/mL (90.27 mM),Sonication is recommended. DMSO: 60 mg/mL (174.71 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble), (< 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 (5.82 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	2.9119 mL	14.5594 mL	29.1189 mL
5 mM	0.5824 mL	2.9119 mL	5.8238 mL
10 mM	0.2912 mL	1.4559 mL	2.9119 mL
50 mM	0.0582 mL	0.2912 mL	0.5824 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

Griswold DE,et al. J Pharmacol Exp Ther. 1998, 287(2),705-711.
Barnette MS, et al. J Pharmacol Exp Ther. 1998, 284(1), 420-426.
Sadrai Z, et al. Invest Ophthalmol Vis Sci. 2012.
Pace E, et al. Cell Immunol. 2011, 268(1), 47-53.
Kobayashi M, et al. Int Immunopharmacol. 2011, 11(6), 732-739.