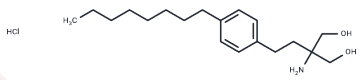
Data Sheet (Cat.No.T2539)

TargetMol

Fingolimod hydrochloride

Chemical Properties



CAS No. : 162359-56-0

Formula: C19H34ClNO2

Molecular Weight: 343.93

Storage: Keep away from moisture
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	Fingolimod hydrochloride (FTY720) , a novel immune modulator, is a sphingosine 1-phosphate (S1P) antagonist (IC50: 0.033 nM in K562 and NK cells).
Targets(IC50)	LPL Receptor,PAK,S1P Receptor,TRP/TRPV Channel
In vitro	The cultures of K562 and NK cells were incubated in the presence of 2 μM S1P and increasing concentrations of Fingolimod (FTY720). Addition of various concentrations of FTY720 blocked the inhibitory effect of S1P with an IC50 value calculated at 0.033 nM. The combination of S1P with FTY720 did not affect the expression of these molecules on the surface of iDCs. In addition, 10 nM FTY720 when incubated alone exerted no effect on the expression of co-stimulatory molecules [1]. FTY720 was able to reduce excitotoxic neuronal death in vitro. FTY720 negatively modulates p38 MAPK in LPS-activated microglia, whereas it had no effect on JNK1/2 activation [2].
In vivo	Administration of the immunomodulator FTY720 increased serum S1P, improved impaired systolic contractility and activated the PI3K-pathway in the heart. Cardioprotective effects of FTY720 were abolished following administration of an S1P receptor 2 (S1P2) antagonist or a PI3K inhibitor. Sphingosine kinase-2 deficient mice had higher endogenous S1P levels and the LPS/PepG-induced impaired systolic contractility was attenuated in comparison with wild-type mice [3]. Using human ALL xenografts in NOD/SCIDγc(-/-) mice, three Ph(+) human ALL xenografts responded to FTY720 with an 80 ± 12% reduction in overall disease when treatment was commenced early. In contrast, treatment of mice with FTY720 did not result in reduced leukemia compared to controls using four separate human Ph(-) ALL xenografts [4].
Cell Research	DCs or NK cells were incubated at a cell concentration of 1 × 10^6 cells/ml with either media or with 2 μM S1P, 10 nM SEW2871, 10 nM FTY720 or their combinations. DCs were also incubated with 1 μg/ml LPS. After 24 h incubation, the cells were harvested and the cell suspensions were centrifuged at 1,000 × g for 10 min before the supernatants were collected. Detection of the levels of various cytokines and chemokines was carried utilizing the Multi-Analyte ELISArray Kit as described by the manufacturers' user manual [1].
Animal Research	This study was carried out on 2-month-old male C57BL/6J mice or sphingosine kinase-2 deficient (SPHK-2?/?) mice weighing 25–30?g, receiving a standard diet and water ad libitum. C57BL/6J wild-type or SPHK-2?/? mice received i.p.-injections of LPS (9?mg/kg)

Animal Research	/PepG (1?mg/kg) or its vehicle (0.9% saline). Sham mice were not subjected to LPS/PepG but were otherwise treated in the same way. At 1?h after LPS/PepG challenge, mice were treated with FTY720 (0.1?mg/kg i.v.) or its vehicle (10% DMSO). To elucidate the role of different S1P receptors in the observed effects of FTY720, mice received (45?min after LPS/PepG and 15?min prior to FTY720) the selective phosphatidylinositol 3 (PI3)-kinase inhibitor LY294002 (0.3?mg/kg i.v.) or the selective S1P2 receptor antagonist JTE 013 (1?mg/kg i.v.) or (1?h after LPS/PepG) the selective S1P1 receptor agonist SEW2871 (1?mg/kg i.v.) or vehicle (10% DMSO) [3].

Solubility Information

Solubility	H2O: 34.4 mg/mL (100.02 mM),Sonication is recommended. DMSO: 102 mg/mL (296.57 mM),Sonication is recommended. (< 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	2.9076 mL	14.5378 mL	29.0757 mL
5 mM	0.5815 mL	2.9076 mL	5.8151 mL
10 mM	0.2908 mL	1.4538 mL	2.9076 mL
50 mM	0.0582 mL	0.2908 mL	0.5815 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

Rolin J, et al. FTY720 and SEW2871 reverse the inhibitory effect of S1P on natural killer cell mediated lysis of K562 tumor cells and dendritic cells but not on cytokine release. Cancer Immunol Immunother. 2010, 59(4), 575-586.
Feng X, Yu F, He X L, et al.CD8+ tissue-resident memory T cells are essential in bleomycin-induced pulmonary fibrosis.American Journal of Physiology-Cell Physiology.2024, 327(5): C1178-C1191.
Cipriani R, et al. FTY720 attenuates excitotoxicity and neuroinflammation. J Neuroinflammation. 2015 May 8;12:86.
Coldewey SM, et al. Elevation of serum sphingosine-1-phosphate attenuates impaired cardiac function in experimental sepsis. Sci Rep. 2016 Jun 9;6:27594.
Wallington-Beddoe CT, et al. Disparate in vivo efficacy of FTY720 in xenograft models of Philadelphia positive and negative B-lineage acute lymphoblastic leukemia. PLoS One. 2012;7(5):e36429.

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