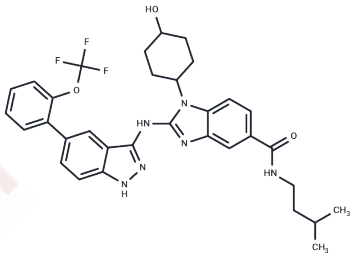
Data Sheet (Cat.No.T11672)

TargetMol

IRAK inhibitor 4

Chemical Properties



CAS No. : 1012104-68-5

Formula: C33H35F3N6O3

Molecular Weight: 620.66

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	IRAK inhibitor 4 is an inhibitor of interleukin-1 receptor-associated kinase 4 (IRAK4).
Targets(IC50)	Others,IRAK
In vitro	IRAK1/4, at a concentration of 20 μM, suppresses LPS-induced IL-6 production but does not affect p38 phosphorylation in alveolar macrophages (AMs). Concurrently, the use of both IRAK1/4 and Rip2 inhibitors significantly reduces TLR2-mediated cytokine production in sarcoidosis patient-derived peripheral blood mononuclear cells (PBMCs) and AMs. Moreover, IRAK4 is found to be both overexpressed and activated in T-cell acute lymphoblastic leukemia (T-ALL), with IRAK4 mRNA levels being higher in T-ALL cells from patients compared to those in thymic T cells or peripheral blood T cells. Additionally, the absence of IRAK-4 compromises the ability of macrophages and dendritic cells (DCs) to produce pro-inflammatory mediators in response to M. bovis and M. tuberculosis. IRAK-4-deficient cells, when stimulated with E. coli LPS, show significantly slower activation kinetics across all signaling proteins examined and a marked decrease in p65 phosphorylation.
In vivo	IRAK-4-/- mice demonstrate an elevated bacterial load across all organs at 15, 30, and 60 days post-infection. Moreover, MCL1, unlike BCL-xL, negates the therapeutic benefits of combined IRAK1/4 inhibitor and ABT-737 treatment in vivo. Additionally, these mice experience significantly decreased survival rates after aerosol infection compared to their IRAK-4+/+ or IRAK-4+/- counterparts.

Solubility Information

Solubility	DMSO: 12.5 mg/mL (20.14 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: 1 mg/mL (1.61 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	1.6112 mL	8.0559 mL	16.1119 mL
5 mM	0.3222 mL	1.6112 mL	3.2224 mL
10 mM	0.1611 mL	0.8056 mL	1.6112 mL
50 mM	0.0322 mL	0.1611 mL	0.3222 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

Marinho FV, et al. Lack of IL-1 Receptor-Associated Kinase-4 Leads to Defective Th1 Cell Responses and Renders Mice Susceptible to Mycobacterial Infection. J Immunol. 2016 Sep 1;197(5):1852-63.
Talreja J, et al. Dual Inhibition of Rip2 and IRAK1/4 Regulates IL-1β and IL-6 in Sarcoidosis Alveolar Macrophages and Peripheral Blood Mononuclear Cells. J Immunol. 2016 Aug 15;197(4):1368-78.
Li Z, et al. Inhibition of IRAK1/4 sensitizes T cell acute lymphoblastic leukemia to chemotherapies. J Clin Invest. 2015 Mar 2;125(3):1081-97.