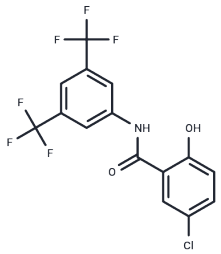
Data Sheet (Cat.No.T6141)

TargetMol

IMD-0354

Chemical Properties



CAS No. : 978-62-1

Formula: C15H8ClF6NO2

Molecular Weight: 383.67

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	IMD-0354 (IKK2 Inhibitor V) is an IKKβ inhibitor that blocks IκBα phosphorylation in the NF-κB pathway.
Targets(IC50)	IκB/IKK
In vitro	IMD-0354 (< 5 μM) inhibits the expression of NF-κB as well as the translocation of NF-κB to the nucleus in HMC-1 cells. IMD-0354 suppresses cell proliferation in a time- and dose-dependent manner in HMC-1 cells. IMD-0354 (0.5 μM) almost inhibits the proliferation of IC-2 g559 cells and IC-2V814 cells. IMD-0354 (0.5 μM) results in arrest of the cell cycle at the G0/G1 phase in HMC-1 cells. IMD-0354 (1 μM) increases the number of cells with hypodiploid DNA content in HMC-1 cells. IMD-0354 (<1 μM) decreases the ratio of cells in S and G2/M phases in HMC-1 cells. IMD-0354 (1 μM) downregulates Cyclin D3 expression as well as pRb phosphorylation level in a time-dependent manner in HMC-1 cells. IMD-0354 (< 10 μM) has no influence on the signals of STAT3 and STAT6, whereas the phosphorylation of STAT1 and STAT5 is very slightly suppressed at high concentrations in HMC-1 cells. IMD-0354 suppresses the translocation of NF-κB to the nucleus in CBhCMCs after 24 hours in a dose-dependent manner. [1] IMD-0354 inhibits 98.5% of NF-κB activity at a concentration of 10 μg/ml in HepG2 cells. [2] IMD-0354 (1 μM) ameliorates the TNFα-induced decrease in the adiponectin concentration in the media, when the TNFα (6 nM) and insulin (100 nM) are administered simultaneously in 3T3-L1 adipocytes serum-starved for 12 h. IMD-0354 (1 μM) restores the phosphorylation of Akt down-regulated by the TNFα treatment, when the TNFα (6 nM) and insulin (100 nM) are administered simultaneously in 3T3-L1 adipocytes serum-starved for 12 h. [3] IMD-0354 (1 μM) inhibits phosphorylation of IκBα and nuclear translocation of nuclear factor-kappa B (NF-κB) induced by tumor necrosis factor-α (TNF-α) in cultured cardiomyocytes. IMD-0354 (1 μM) significantly reduces TNF-α-induced production of interleukin-1β and monocyte chemoattractant protein-1 from cultured cardiomyocytes. [4]
In vivo	IMD-0354 at 5 mg/kg also significantly decreases NF-κB, but the magnitude of the decrease is lower than with 20 mg/kg IMD-0354 in lungs of OVA-sensitized mice. IMD-0354 (20 mg/kg) ameliorates airway hyperresponsiveness and reduces the numbers of bronchial eosinophils and mucus-producing cells in OVA-sensitized mice. IMD-0354 (20 mg/kg) also reduces the total numbers of cells and eosinophils in bronchoalveolar lavage fluid in OVA-sensitized mice. IMD-0354 (20 mg/kg) inhibits the production of Th2 cytokines such as interleukin (IL)-5 and IL-13 and eotaxin in the airways and/or lungs of

In vivo	OVA-sensitized mice, but it does not affect the restoration of Th1 cytokines such as IL-12 and interferon-gamma under the same experimental conditions. IMD-0354 (20 mg/kg) results in a partial decrease in serum IgE concentration in OVA-sensitized mice. [2] IMD-0354 significantly decreases the plasma glucose levels in KKAy mice treated with and fed an HF diet in an dose-dependent manner without influence of body weight. [3] IMD-0354 (10 mg/kg) results in a significant dose-dependent reduction of the infarction area/area at risk ratio and the preservation of fractional shortening ratio. [4]
Kinase Assay	In vitro mTOR kinase assays : The reaction mixture consisted of the following components in 10 µL assay buffer (50 mM Hepes pH 7.5, 10 mM MgCl 2, 3 mM MnCl 2, 1 mM EGTA, 2 mM DTT, 0.01%Tween-20): 0.10 µg/mL of in-house generated mTOR enzyme, 0.05 µM ULight-eIF4E-binding protein 1 (Thr37/46) peptide and 10 µM ATP. The mixture is incubated for 60 min at room temperature. 10 µL of Detection mixture consisted of 16 mM EDTA, 0.004 mM Eu-W1024-labeled Anti-Phospho-eIF4E-binding protein 1-(Thr37/46) antibody and 1X LANCE? Detection Buffer is then added and incubated for 60 min.
Cell Research	Cells (2×105 cells/mL) are incubated in phenol red free α-MEM containing 10% FCS (for HMC-1 and IC-2 cells) or 5% FCS (for CBhCMCs), and antibiotics with or without various concentrations of IMD-0354, STI571, or PDTC. IC-2WT cells and CBhCMCs are incubated in the presence of 100 ng/mL recombinant rat or recombinant human SCF. One hundred microliters of cell suspension is applied to each well of 96-well culture plates and are incubated for 24, 48, and 72 hours. Before 4 hours from the end of the culture, 10 µL of 5 mg/mL 3-[4,5-dimethylthiazol-2-yl]-2,5-diphenyl-tetrazolium bromide (MTT) dissolves in PBS is added to each well. The reaction is stopped with the addition of 100 µL of 10% SDS in 0.01 N HCl. Absorbance is measured at 577 nm with ImmunoMini NJ-2300.(Only for Reference)

Solubility Information

Solubility	DMSO: 160 mg/mL (417.03 mM),Sonication is recommended. Ethanol: 38.4 mg/mL (100.09 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 (5.21 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	2.6064 mL	13.032 mL	26.0641 mL
5 mM	0.5213 mL	2.6064 mL	5.2128 mL
10 mM	0.2606 mL	1.3032 mL	2.6064 mL
50 mM	0.0521 mL	0.2606 mL	0.5213 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

Tanaka A, et al. Blood, 2005, 105(6), 2324-2331.
Liu Y, Wang J, Chen J, et al. Upregulation of miR-520c-3p via Hepatitis B Virus Drives Hepatocellular Migration and Invasion through the PTEN/AKT/NF-κB Signaling Pathway. Molecular Therapy-Nucleic Acids. 2022
Sugita A, et al. Int Arch Allergy Immunol, 2009, 148(3), 186-198.
Kamon J, et al. Biochem Biophys Res Commun, 2004, 323(1), 242-248.
Onai Y, et al. Cardiovasc Res, 2004, 63(1), 51-59.