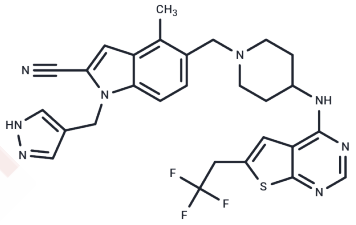
Data Sheet (Cat.No.TQ0069)

TargetMol

MI-503

Chemical Properties



CAS No. : 1857417-13-0

Formula: C28H27F3N8S

Molecular Weight: 564.63

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	MI-503 is an efficient and selective Menin-MLL inhibitor with an IC50 of 14.7 nM. In human MLL leukemia cell lines, MI-503 has a significant growth inhibition effect (GI = 250 nM-570 nM).
Targets(IC50)	Epigenetic Reader Domain,Histone Methyltransferase
In vitro	Treatment of murine bone marrow cells (BMC) transformed with the mLL-AF9 oncogene with MI-503 results in substantial growth inhibition (GI50: 0.22 μM). The cell growth inhibitory effect of MI-503 is time-dependent, with a pronounced effect achieved after 7-10 days of treatment.
In vivo	Following a single intravenous or oral administration, MI-503 rapidly attains high concentrations in peripheral blood and demonstrates significant oral bioavailability (75%). This compound effectively suppresses tumor growth through daily intraperitoneal (i.p.) doses, leading to an over 80% decrease in MV4;11 tumor volume, including complete regression in two mice. Continuous treatment over ten days notably delays the progression of mLL leukemia and substantially lowers the leukemia tumor burden in mice. Additionally, combined use of MI-503 and MI-463 significantly diminishes the expression of Hoxa9 and Meis1, indicating a potent antitumor activity.
Cell Research	Leukemia cells are treated with MI-503 or 0.25% DMSO and cultured at 37 °C for 7 days. Media is changed on day 4, viable cell numbers are restored to the original concentration and MI-503 are re-supplied. MTT cell proliferation assay kit is then employed, and plates are read for absorbance at 570 nm using a microplate reader.
Animal Research	For efficacy studies in MV4;11 subcutaneous xenograft mice model, 5×10^6 cells are injected into the 4-6 week old female BALB/c nude mice. Treatment is started when the tumor size reached ~100 mm^3. Vehicle (25% DMSO, 25% PEG400, 50% PBS) or compounds (MI-463 or MI-503) are administrated once daily at designated doses using i.p. injections.

Solubility Information

Solubility	DMSO: 45 mg/mL (79.7 mM),Sonication is recommended. H2O: Insoluble, (< 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 (3.54 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	1.7711 mL	8.8554 mL	17.7107 mL
5 mM	0.3542 mL	1.7711 mL	3.5421 mL
10 mM	0.1771 mL	0.8855 mL	1.7711 mL
50 mM	0.0354 mL	0.1771 mL	0.3542 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

Borkin D,et al. Pharmacologic inhibition of the Menin-MLL interaction blocks progression of MLL leukemia in vivo. Cancer Cell. 2015 Apr 13; 27(4):589-602.

Duan S,et al. Clinically Defined Mutations in MEN1 Alter Its Tumor-suppressive Function Through Increased Menin Turnover. Cancer Res Commun. 2023 Jul 24; 3(7):1318-1334.