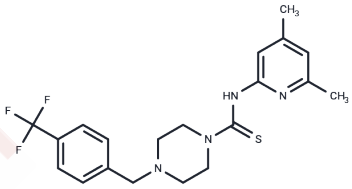
Data Sheet (Cat.No.T4213)

TargetMol

NCT-503

Chemical Properties



CAS No. : 1916571-90-8

Formula: C20H23F3N4S

Molecular Weight: 408.48

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	NCT-503 is a phosphoglycerate dehydrogenase (PHGDH) inhibitor (IC50=2.5 μM) with no activity against other dehydrogenases. NCT-503 has antitumor activity and inhibits the growth of PHGDH-dependent tumors.
Targets(IC50)	FLT,Dehydrogenase,TAM Receptor
In vitro	**METHODS**: Mouse bone marrow cells (BMC) transformed with MLL-AF9 and Hoxa9/Meis1 (HM-2) were treated with MI-503 (0-5 μM) for 7 days, and viability was measured by MTT assay. **RESULTS**: Treatment of MLL-AF9 oncogene-transformed BMC with MI-503 resulted in significant growth inhibition, with a GI50 value of 0.22 μM measured after 7 days of treatment.[1] **METHODS**: AGS cells overexpressing wild-type menin and three mutant proteins were treated with MI-503 (1 μmol/L) for 48 h. The expression levels of target proteins were detected by Western Blot. **RESULTS**: MI-503 increased the expression of nuclear proteins, with the greatest effect observed in R516fs and E235K mutants. [2]
In vivo	**METHODS**: To test the in vivo antitumor activity, MI-503 (60 mg/kg, 25% DMSO+25% PEG400+50% PBS) was administered intraperitoneally to BALB/c nude mice bearing MV4;11 xenografts once a day for 20 days. **RESULTS**: MI-503 strongly inhibited tumor growth, and treatment with MI-503 resulted in more than 80% reduction of MV4;11, and complete regression of tumor volume and tumor in two mice. [1]
Animal Research	Animal Models: NOD.SCID mice bearing MDA-MB-231 and MDA-MB-468 orthotropic xenograftsFormulation: 5% ethanol, 35% PEG 300, and 60% of an aqueous 30% hydroxypropyl-β-cyclodextrin solutionDosages: 40 mg/kgAdministration: i.p.(Only for Reference)

Solubility Information

Solubility	H2O: < 1 mg/mL (insoluble or slightly soluble), Ethanol: 75 mg/mL (183.61 mM),Sonication is recommended. DMSO: 127 mg/mL (310.91 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: 1.83 mg/mL (4.48 mM),Solution. *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	2.4481 mL	12.2405 mL	24.481 mL
5 mM	0.4896 mL	2.4481 mL	4.8962 mL
10 mM	0.2448 mL	1.2241 mL	2.4481 mL
50 mM	0.049 mL	0.2448 mL	0.4896 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

Pacold ME, et al. A PHGDH inhibitor reveals coordination of serine synthesis and one-carbon unit fate. Nat Chem Biol. 2016 Jun;12(6):452-8. doi: 10.1038/nchembio.2070. Epub 2016 Apr 25. Erratum in: Nat Chem Biol. 2016 Jul 19; 12(8):656.

Chen H, Liu C, Wang Q, et al. Renal UTX-PHGDH-serine axis regulates metabolic disorders in the kidney and liver. Nature Communications. 2022, 13(1): 1-19

Arlt B, et al. Inhibiting PHGDH with NCT-503 reroutes glucose-derived carbons into the TCA cycle, independently of its on-target effect. J Enzyme Inhib Med Chem. 2021 Dec;36(1):1282-1289.