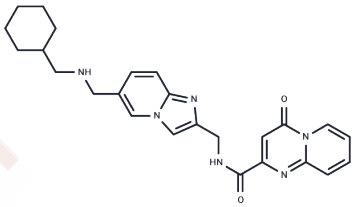
Data Sheet (Cat.No.T9060)

TargetMol

STM2457

Chemical Properties



CAS No. : 2499663-01-1

Formula: C25H28N6O2

Molecular Weight: 444.53

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	STM2457 is an inhibitor of the RNA methyltransferase METTL3 (IC50=16.9 nM) with selective and oral activity.STM2457 can be used in acute myeloid leukemia (AML) studies.
Targets(IC50)	Apoptosis
In vitro	**METHODS**: Eight human acute myeloid leukemia cells AML were treated with STM2457 (0-100 μM) for 72 h. Cell proliferation was detected using CellTiter 96 AQueous Non-Radioactive Cell Proliferation Assay. **RESULTS**: STM2457-treated AML cell lines showed a significant reduction in growth after treatment in a concentration-dependent manner, with IC50s ranging from 0.6-10.3 μM. [1] **METHODS**: Human lung cancer cells A549 and H1975 were treated with STM2457 (1-5 μM) for 3-6 days and apoptosis was detected using Flow Cytometry. **RESULTS**: STM2457 induced apoptosis in A549 and H1975 cells. [2]
In vivo	**METHODS**: To assay anti-tumor activity in vivo, STM2457 (50 mg/kg) was administered intraperitoneally to NSG mice bearing xenografts derived from human AML patients once daily for twelve to fourteen days. **RESULTS**: Daily treatment with STM2457 resulted in impaired implantation and AML amplification in vivo and significantly prolonged mouse lifespan. [1] **METHODS**: To investigate the role of METTL3 in the pathogenesis of systemic lupus erythematosus (SLE), STM2457 (30 mg/kg) was administered intraperitoneally to a cGVHD lupus mouse model once every three days for ten weeks. **RESULTS**: METTL3 inhibition increased antibody production and exacerbated the lupus-like phenotype in cGVHD mice.METTL3 inhibition is involved in the pathogenesis of SLE by participating in the imbalance between CD4+ T cell activation and effector T cell differentiation. [3]

Solubility Information

Solubility	DMSO: 49.5 mg/mL (111.35 mM),Sonication and heating are recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

In vivo Formulation	10% DMSO+30% PEG300+5% Tween 80+55% ddH2O: 4.76 mg/mL (10.71 mM),Solution. 10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2.22 mg/mL (4.99 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	2.2496 mL	11.2478 mL	22.4957 mL
5 mM	0.4499 mL	2.2496 mL	4.4991 mL
10 mM	0.225 mL	1.1248 mL	2.2496 mL
50 mM	0.045 mL	0.225 mL	0.4499 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

Yankova E, et al. Small-molecule inhibition of METTL3 as a strategy against myeloid leukaemia. Nature. 2021 May; 593(7860):597-601.
Xu Q C, Tien Y C, Shi Y H, et al. METTL3 promotes intrahepatic cholangiocarcinoma progression by regulating IFIT2 expression in an m6A-YTHDF2-dependent manner. Oncogene. 2022: 1-12.
Zhao T, Zhao R, Yi X, et al. METTL3 promotes proliferation and myogenic differentiation through m6A RNA methylation/YTHDF1/2 signaling axis in myoblasts. Life Sciences. 2022: 120496.
Xiao H, et al. Effects and translatomics characteristics of a small-molecule inhibitor of METTL3 against non-small cell lung cancer. J Pharm Anal. 2023 Jun;13(6):625-639.
Lu S, et al. m6A methyltransferase METTL3 programs CD4+ T-cell activation and effector T-cell differentiation in systemic lupus erythematosus. Mol Med. 2023 Apr 3;29(1):46.
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Li J, Wei L, Hu K, et al.Deciphering m6A methylation in monocyte-mediated cardiac fibrosis and monocyte-hitchhiked erythrocyte microvesicle biohybrid therapy.Theranostics.2024, 14(9): 3486.
Pupak A, Rodríguez-Navarro I, Sathasivam K, et al.m6A modification of mutant huntingtin RNA promotes the biogenesis of pathogenic huntingtin transcripts.EMBO reports.2024: 1-27.
Zhou Q, Liu X, Lu H, et al.m6A-methylase METTL3 promotes retinal angiogenesis through modulation of metabolic reprogramming in RPE cells.Journal of Neuroinflammation.2024, 21(1): 289.