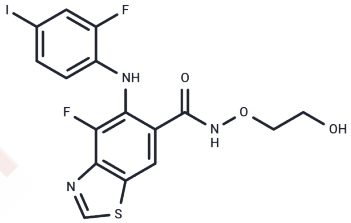
Data Sheet (Cat.No.T39220)

TargetMol

Tunlametinib

Chemical Properties



CAS No. : 1801756-06-8

Formula: C16H12F2IN3O3S

Molecular Weight: 491.25

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	Tunlametinib is a highly selective, orally bioavailable small molecule inhibitor of MEK1 and MEK2 kinases with a reported IC50 value of 1.9 nM for MEK1. Tunlametinib exerts its antitumor effects by blocking the oncogenic RAS-RAF-MEK-ERK signaling pathway, thereby inducing tumor cell cycle arrest and promoting apoptosis, Tunlametinib demonstrates strong inhibitory activity against various RAS/RAF-mutant cancer cells such as those harboring BRAF V600E or KRAS G12C mutations, shows synergistic effects in combination with BRAF/KRASG12C/SHP2 inhibitors and Docetaxel, and is used in targeted therapy for RAS/RAF-driven cancers including melanoma, colorectal cancer, and non-small cell lung cancer (NSCLC).
Targets(IC50)	MEK,Ras,Kras
In vitro	**Methods**: A375 cells were treated with tunlametinib (1-9 nM, 48 h) to evaluate the effects on the cell cycle. **Results**: Tunlametinib increased the proportion of A375 cells in the G0/G1 phase in a dose-dependent manner and induced cell cycle arrest. **Methods**: Tunlametinib was used to treat BRAF/KRAS mutant cell lines: A375, Colo-829, HL-60 melanoma cells, COLO 205, HT-29 colon cancer cells, Calu-6, A549 lung cancer cells, and cell viability was determined by MTS assay. **Results**: The IC50 values of tunlametinib in the above cells were 0.86 nM, 3.46 nM, 0.67 nM, 0.94 nM, 10.07 nM, and 59.89 nM. [1]
In vivo	**Methods**: Tunlametinib (1, 3, 6 mg/kg, oral, once daily for 21 days) was used to treat female BALB/c nude mice, NU/NU mice, or Nod-Scid mice bearing A375 (BRAF V600E mutant melanoma), COLO 205 (BRAF V600E mutant colon cancer), and Calu-6 (KRAS Q61K mutant lung cancer) tumors, and the tumor growth in vivo was observed. **Results**: Tunlametinib inhibited tumor growth in the above mice in a concentration-dependent manner. [1]

Solubility Information

Solubility	DMSO: 80 mg/mL (162.85 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: 5 mg/mL (10.18 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*

In vivo Formulation	*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	2.0356 mL	10.1781 mL	20.3562 mL
5 mM	0.4071 mL	2.0356 mL	4.0712 mL
10 mM	0.2036 mL	1.0178 mL	2.0356 mL
50 mM	0.0407 mL	0.2036 mL	0.4071 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

Liu Y, et al. Preclinical characterization of tunlametinib, a novel, potent, and selective MEK inhibitor. Front Pharmacol. 2023 Sep 21;14:1271268.