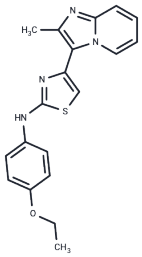
Data Sheet (Cat.No.T3588)

TargetMol

JK184

Chemical Properties



CAS No. : 315703-52-7

Formula: C19H18N4OS

Molecular Weight: 350.44

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	JK184, a potent Hedgehog (Hh) pathway inhibitor.
Targets(IC50)	Hedgehog/Smoothened
In vitro	JK184 is specifically designed to counteract Hedgehog (Hh) signaling through the inhibition of glioma-associated oncogene (Gli)-dependent transcriptional activity in a dose-dependent fashion. It effectively reduces the growth of human umbilical vein endothelial cells (HUVECs) with a half maximal inhibitory concentration (IC50) of 6.3 μg/mL following a three-day incubation period. Moreover, MTT assays reveal that JK184 significantly restricts tumor growth in Panc-1 and BxPC-3 cell lines, demonstrating IC50 values of 23.7 ng/mL and 34.3 ng/mL, respectively. Notably, cell lines characterized by lower levels of the tight junction protein claudin show increased sensitivity to JK184, with the compound inducing a dose-dependent reduction in both GLI1 mRNA and protein expressions. Additionally, administering JK184 at the IC50 concentration significantly increases Annexin-V staining in HMLE-shEcad cells while maintaining negativity for propidium iodide (PI) staining, indicating a pronounced pro-apoptotic effect without compromising cell membrane integrity (P<0.0001, t-test)[1][2].
In vivo	JK184 (5 mg/kg, injected intravenously) demonstrates strong anti-proliferative activity in subcutaneous Panc-1 and BxPC-3 tumor models, making it a promising candidate as an antitumor drug targeting Hh signaling. Histological analysis revealed that JK184 enhances anti-tumor activity by inducing apoptosis, decreasing microvessel density, and reducing CD31, Ki67, and VEGF expression in tumor tissues. However, JK184 exhibits a poor pharmacokinetic profile and bioavailability[1].
Cell Research	JK184 is dissolved in DMSO and stored, and then diluted with appropriate medium before use[1]. The Shh-LIGHT2 cells are seeded in 96-well plates and grown to confluency. The Shh-LIGHT2 cells are treated with various concentrations of JK184 micelles or free JK184 or micelles in DMEM containing 0.5% CS, 0.1 mg/mL streptomycin, 100 U/mL penicillin, 5% Shh-N conditioned medium obtained from Shh-N-producing HEK293 cells. The treated cells are cultured further for 60 h, and firefly and Renilla luciferase activities are measured using a dual luciferase kit. Proliferation assay or apoptosis evaluation of HUVECs is measured using MTT method or FCM analysis, respectively. HUVECs are treated with a series concentration of free JK184, JK184 micelles, or blank MPEG-PCL micelles for 48 h, respectively. The mean percentage of cell

Cell Research	inhibition or apoptosis is calculated[1].

Solubility Information

Solubility	DMSO: 3.51 mg/mL (10.02 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 mg/mL (2.85 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	2.8536 mL	14.2678 mL	28.5356 mL
5 mM	0.5707 mL	2.8536 mL	5.7071 mL
10 mM	0.2854 mL	1.4268 mL	2.8536 mL
50 mM	0.0571 mL	0.2854 mL	0.5707 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

Zhang N, et al. Biodegradable polymeric micelles encapsulated JK184 suppress tumor growth through inhibiting Hedgehog signaling pathway. Nanoscale. 2015 Feb 14;7(6):2609-24.

Colavito, S., Zou, M., Yan, Q., Nguyen, D., & Stern, D. (2014). Significance of glioma-associated oncogene homolog 1 (GLI1)expression in claudin-low breast cancer and crosstalk with the nuclear factor kappa-light-chain-enhancer of activated B cells (NFκB) pathway. Breast Cancer Research, 16(5). doi: 10.1186/s13058-014-0444-4