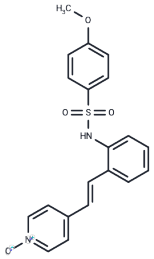
Data Sheet (Cat.No.T3643)

TargetMol

HMN-176

Chemical Properties



CAS No. : 173529-10-7

Formula: C20H18N2O4S

Molecular Weight: 382.43

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	HMN-176 is a stilbene derivative which inhibits mitosis, interfering with polo-like kinase-1 (plk1).
Targets(IC50)	PLK
In vitro	HMN-176 at a concentration of 2.5 μM significantly prolongs mitosis in hTERT-RPE1 and CFPAC-1 cell lines, independent of its impact on microtubule polymerization. Concentration-dependently, it inhibits aster formation at doses of 2.5, 0.25, and 0.025 μM. At varying concentrations (0.1, 1.0, or 10.0 μg/mL), HMN-176 exhibits inhibitory effects on breast, non-small-cell lung, and ovarian cancer specimens, with significant activity observed in 63% of breast, 67% of non-small cell lung, and 57% of ovarian tumor specimens treated at 10.0 μg/mL. It shows considerable cytotoxicity across different tumor types from various organs, with a mean IC50 value of 118 nM, indicating a broad cytotoxic effect. Furthermore, a 3 μM treatment of HMN-176 reduces MDR1 mRNA expression by 56%, although it does not significantly affect residual promoter activity.
In vivo	HMN-176 prevents spindle assembly and meiosis in Spisula oocytes by inhibiting centrosome-dependent MT nucleation, i.e., aster formation. Oocytes treated with 0.25 μM HMN-176 undergoes GVBD, but asters or spindles fails to form, even after prolonged periods[1]. After p.o. of HMN-214 to male rats, the prodrug is not detected in the plasma, while plasma levels of HMN-176 peaks at 2 h and gradually decreases thereafter[3].
Cell Research	Cells to be tested are seeded into a 96-well microplate at a density of 3 ×103-1×104 cells/well. Drugs are added the next day and the plate is incubated for 72 h at 37 °C in a humidified incubator (5% CO2, 95% air). The inhibition of growth is measuredby the MTT assay, and the concentration required to produce 50% inhibition of growth (IC50) calculated by the Scansoft 96 software program. The IC50 values for HMN-176 andreference agents are presented. Briefly, for each compound the mean IC50 value for all cell lines tested is calculated and the difference between the individual IC50 values and the mean IC50 value (log10) displayed by a bar projecting to the right or left of the mean. The resistance index is calculated as (IC50 value for drug-resistant cell line)/(IC50 for parent cell line).

Solubility Information

Solubility	DMSO: 100 mg/mL (261.49 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	2% DMSO+40% PEG300+5% Tween 80+53% Saline: 2 mg/mL (5.23 mM) *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	2.6149 mL	13.0743 mL	26.1486 mL
5 mM	0.523 mL	2.6149 mL	5.2297 mL
10 mM	0.2615 mL	1.3074 mL	2.6149 mL
50 mM	0.0523 mL	0.2615 mL	0.523 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

DiMaio MA, et al. The small organic compound HMN-176 delays satisfaction of the spindle assembly checkpoint by inhibiting centrosome-dependent microtubule nucleation. Mol Cancer Ther. 2009 Mar;8(3):592-601.
Medina-Gundrum L, et al. Investigation of HMN-176 anticancer activity in human tumor specimens in vitro and the effects of HMN-176 on differential gene expression. Invest New Drugs. 2005 Jan;23(1):3-9.
Takagi M, et al. In vivo antitumor activity of a novel sulfonamide, HMN-214, against human tumor xenografts in mice and the spectrum of cytotoxicity of its active metabolite, HMN-176. Invest New Drugs. 2003 Nov;21(4):387-99.
Tanaka H, et al. HMN-176, an active metabolite of the synthetic antitumor agent HMN-214, restores chemosensitivity to multidrug-resistant cells by targeting the transcription factor NF-Y. Cancer Res. 2003 Oct 15;63(20):6942-7.