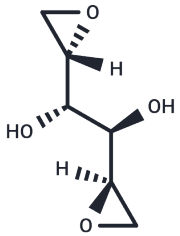
Data Sheet (Cat.No.T17212)

TargetMol

VAL-083

Chemical Properties



CAS No. : 23261-20-3

Formula: C6H10O4

Molecular Weight: 146.14

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	VAL-083 is an alkylating agent with antitumor activity that produces N7 methylation on DNA.
Targets(IC50)	DNA Alkylation,DNA Alkylator/Crosslinker
In vitro	VAL-083 inhibits T98G cell growth in a dose-dependent manner (IC50 <5 μM). VAL-083 inhibits the proliferation of HUVEC and U251 cells at doses of more than 12.5 μg/mL. VAL-083 suppresses U251 and SF188 cell growth and induces apoptosis after 72 h. VAL-083 (5 μM) inhibits the growth of SF188 by ~95%. VAL-083 (3.125, 6.25, 12.5 μg/mL) also suppresses the migration and invasion and reduces MMP2, VEGF, VEGFR2, and FGF2 expression in HUVEC and U251 cells. VAL-083 (1, 2, 5 μM) dose-dependently induces cell cycle arrest at the G2/M phase in the 3 glioma cell lines. VAL-083 activates two parallel signaling cascades, the p53-p21, and the CDC25C-CDK1 cascade. VAL-083 significantly enhances the radiosensitivity of LN229 cells [1][2][3].
In vivo	VAL-083 significantly decreases the expression of VEGF, VEGFR2, and FGF2 at a concentration of 25 μg/mL, while at 50 μg/mL, it also reduces FGFR2 expression. Its action involves the activation of the CDC25C-CDK1 cascade in xenografted tumor models. Additionally, VAL-083 exhibits a dose-dependent inhibition of angiogenesis in zebrafish models at concentrations of 25, 50, and 100 μg/mL. In a murine study, VAL-083, administered intravenously at 5 mg/kg twice weekly for six weeks, markedly suppresses LN229 cell growth, resulting in a relative tumor growth rate (T/C) of 22.38% and a tumor growth inhibitory rate (TGI) of 83.58%.

Solubility Information

Solubility	H2O: 40 mg/mL (273.71 mM),Sonication is recommended. DMF: 90 mg/mL (615.85 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	6.8428 mL	34.2138 mL	68.4275 mL
5 mM	1.3686 mL	6.8428 mL	13.6855 mL
10 mM	0.6843 mL	3.4214 mL	6.8428 mL
50 mM	0.1369 mL	0.6843 mL	1.3686 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

Kaiji Hu, et al. Abstract 811: VAL083, a novel N7 alkylating agent, surpasses NSC 362856 activity and inhibits cancer stem cells providing a new potential treatment option for glioblastoma multiforme. Cancer Research. 2012 Mar 31-Apr 4.

Jiang X, et al. Dianhydrogalactitol, a potential multitarget agent, inhibits glioblastoma migration, invasion, and angiogenesis. Biomed Pharmacother. 2017 Jul;91:1065-1074.

Peng C, et al. 1,2:5,6-dianhydrogalactitol inhibits human glioma cell growth in vivo and in vitro by arresting the cell cycle at G2/M phase. Acta Pharmacol Sin. 2017 Apr;38(4):561-570.