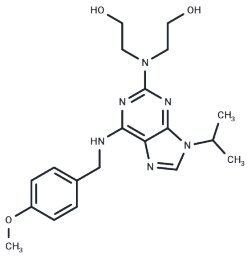
Data Sheet (Cat.No.T3195)

TargetMol

CVT-313

Chemical Properties



CAS No. : 199986-75-9

Formula: C20H28N6O3

Molecular Weight: 400.47

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	CVT-313 (NG-26) is a potent, selective, reversible, and ATP-competitive inhibitor.
Targets(IC50)	CDK
In vitro	CVT-313 has been shown to inhibit other kinases, but at much higher IC50 values, i.e., CDK1 (IC50=4.2 μM), CDK4 D1 (IC50=215 μM), and MAPK/PKA/PKC (IC50>1.25 mM), compared to CDK2 (IC50=0.5 μM). CVT-313 has been shown to have profound effects on cell proliferation at concentrations of 5-20 μM[1]. CVT-313 is a potent CDK2 inhibitor, which is identified from a purine analog library with an IC50 of 0.5 μM in vitro. Inhibition is competitive with respect to ATP (Ki=95 nM), and selective CVT-313 has no effect on other, nonrelated ATP-dependent serine/threonine kinases. When added to CDK1 or CDK4, a 8.5- and 430-fold higher concentration of CVT-313 is required for half-maximal inhibition of the enzyme activity. Using normal and tumor human/murine cell lines, the effects of CVT-313 on cell proliferation is measured. The IC50 for growth inhibition ranged from 1.25 to 20 μM[2].
Kinase Assay	For kinase assays, purified CDC5L(295-795)-His6 is mixed with [γ-32P]ATP, COS-7 cell extract, and incubated in 100 μL 20 mM HEPES, pH 7.5, 50 mM NaCl, 2 mM MnCl2, 10 mM MgCl2, 0.5% NP-40, 0.5 mM PMSF, 5 mM benzamidine hydrochloride, 5 mM NaF, 1 mM NaVO3 and the specific inhibitor at 30°C for 10 minutes. Cell extract as a source of kinase activity is prepared from subconfluent, serum-stimulated COS-7 cells lysed in 20 mM HEPES-NaOH, pH 7.5, 50 mM NaCl, 1% Triton X-100, 10% glycerol, protease and phosphotase inhibitors. Phosphorylated proteins are separated by electrophoresis in 15% polyacrylamide-SDS gels. Specific inhibitors included 20 μM staurosporine, 10 μM genistein, 1 μM CVT-313, 10 μM Rp-MB-cAMPS and 50 μM PD98059[1].
Cell Research	CVT313 is prepared in DMSO and stored, and then diluted with appropriate medium before use[2]. MRC-5 cells are grown in Dulbecco's modified Eagle's medium containing 5% fetal calf serum. CVT313 (0, 5, 10, 15 μM) is added to exponentially growing cells in tissue culture. Cell population is measured. Proliferation assays are carried out using the nonradioactive CellTiter 96 kit after 48-h exposure. For FACS analysis of DNA content, cells are trypsinized, fixed in 70% ice-cold ethanol, and treated with 0.1 mg/mL RNase A and 40 μg/mL propidium iodide for 1 h at 37°C[2].

Solubility Information

Solubility	DMSO: 50 mg/mL (124.85 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: 2 mg/mL (4.99 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	2.4971 mL	12.4853 mL	24.9707 mL
5 mM	0.4994 mL	2.4971 mL	4.9941 mL
10 mM	0.2497 mL	1.2485 mL	2.4971 mL
50 mM	0.0499 mL	0.2497 mL	0.4994 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

Graub R, et al. Cell cycle-dependent phosphorylation of human CDC5 regulates RNA processing. Cell Cycle. 2008 Jun 15;7(12):1795-803.

Jiang L, Yu Y, Li Z, et al.BMS-265246, a Cyclin-Dependent Kinase Inhibitor, Inhibits the Infection of Herpes Simplex Virus Type 1.Viruses.2023, 15(8): 1642.

Brooks EE, et al. CVT-313, a specific and potent inhibitor of CDK2 that prevents neointimal proliferation. J Biol Chem. 1997 Nov 14;272(46):29207-11.

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