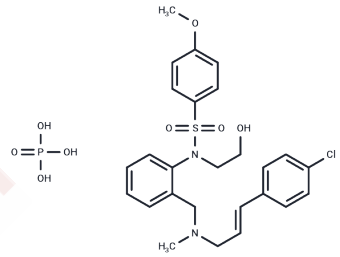
Data Sheet (Cat.No.T2606)

TargetMol

KN-93 Phosphate

Chemical Properties



CAS No. : 1913269-12-1

Formula: C26H32ClN2O8PS

Molecular Weight: 599.03

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	KN-93 (Phosphate) can competitively block the binding of calmodulin to the corresponding kinase. It is a calcium/calmodulin-dependent kinase II (CaMKII) inhibitor with a Ki of 370 nM. It can also inhibit the proliferation of human hepatic stellate cells.
Targets(IC50)	CaMK,Autophagy
In vitro	**METHODS**: PCI2h cells were treated with KN-93 (0, 1, 2, 5, 10 μM) and dopamine content was measured. **RESULTS** KN-93 reduced dopamine (DA) content in a dose-dependent manner. [3] **METHODS**: Human hepatic stellate cells (LX-2) were treated with KN-93 (0-50 μM), cell proliferation was detected by CCK-8 method, and the expression of two cell cycle regulators, p53 and p21, was detected by SDS-PAGE and Western blotting. **RESULTS** KN-93 (5-50 μM) reduced the proliferation of human hepatic stellate cells in a dose-dependent manner, from 81.76% to 27.15% after 24 hours of treatment; 10 μM KN-93 incubation induced a time-dependent decrease in cell growth, from 78.27% at 8 h to 11.48% at 48 h; cell cycle regulator expression analysis showed that KN-93 reduced the expression of p53 and p21. [5]
In vivo	**METHODS**: 6-hydroxydopamine (OHDA) injection induced PD model in rats, and different doses of KN-93 (1 μg, 2 μg, or 5 μg) were administered into the striatum of successfully lesioned rats before L-DOPA treatment. Abnormal involuntary movement (AIM) scores and apomorphine-induced rotations were measured in PD rats. Phosphorylation level of GluR1 at Serine-845 (pGluR1S845) level was determined by western blot. Arc and Penk levels were measured by real-time polymerase chain reaction (PCR). **RESULTS** Both 2 μg and 5 μg KN-93 treatment reduced the AIMs scores of L-dopa-induced PD rats without affecting the anti-parkinsonian effect of L-dopa; consistent with behavioral analysis, KN-93 (2 μg) treatment reduced the level of pGluR1S845 in PD rats and also reduced the expression of Gad1 and Nur77 in PD rats. [1] **METHODS**: KN-93 (0.24 mg/kg, intraperitoneal injection, three times a week) treated MRL/lpr Foxp3-GFP mice, harvested lymphoid organs, and determined the number of Foxp3 cells; from MRL/lpr Foxp3-GFP mice Naïve CD4 cells were isolated from the spleen and cultured in vitro under Treg polarizing conditions to determine whether they could prevent disease progression. **RESULTS** Treg cells in PBS-treated mice gradually decreased, while Treg cells in KN-93-treated mice remained stable and significantly increased; more GFP-positive cells were

In vivo	found in the spleen and peripheral lymph nodes of KN-93-treated mice. ; The percentage of Treg cells was higher in the presence of KN-93 in a dose-dependent manner. [2]

Solubility Information

Solubility	DMSO: 135 mg/mL (225.36 mM),Sonication is recommended. Ethanol: < 1 mg/mL (insoluble or slightly soluble), H2O: 100 mg/mL (166.94 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	Saline: < 1 mg/mL (insoluble or slightly soluble) PBS: < 1 mg/mL (insoluble or slightly soluble) *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	1.6694 mL	8.3468 mL	16.6937 mL
5 mM	0.3339 mL	1.6694 mL	3.3387 mL
10 mM	0.1669 mL	0.8347 mL	1.6694 mL
50 mM	0.0334 mL	0.1669 mL	0.3339 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

Yang X, et al. Intrastriatal injections of KN-93 ameliorates levodopa-induced dyskinesia in a rat model of Parkinson's disease. Neuropsychiatr Dis Treat. 2013;9:1213-20.
Koga T,et al. KN-93, an inhibitor of calcium/calmodulin-dependent protein kinase IV, promotes generation and function of Foxp3$^+$ regulatory T cells in MRL/lpr mice. Autoimmunity. 2014 Nov;47(7):445-50.
Sumi M, et al. The newly synthesized selective Ca2+/calmodulin dependent protein kinase II inhibitor KN-93 reduces dopamine contents in PC12h cells. Biochem Biophys Res Commun. 1991 Dec 31;181(3):968-75.
Tombes RM, et al. G1 cell cycle arrest and apoptosis are induced in NIH 3T3 cells by KN-93, an inhibitor of CaMK-II (the multifunctional Ca2+/CaM kinase). Cell Growth Differ. 1995 Sep;6(9):1063-70.
An P, et al. KN-93, a specific inhibitor of CaMKII inhibits human hepatic stellate cell proliferation in vitro. World J Gastroenterol. 2007 Mar 7;13(9):1445-8.