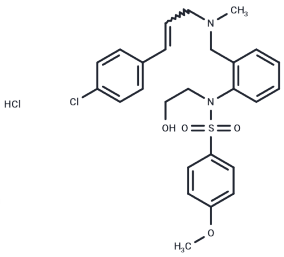
Data Sheet (Cat.No.T21557)

TargetMol

KN-93 hydrochloride

Chemical Properties



CAS No. : 1956426-56-4

Formula: C26H30Cl2N2O4S

Molecular Weight: 537.5

Storage: Store at low temperature
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 hydrochloride is a cell-permeable, reversible, and competitive inhibitor of calmodulin-dependent kinase type II (CaMKII) with a Ki of 370 nM. KN-93 hydrochloride induces G1 cell cycle arrest in 95% of treated cells after two days, with the arrest being reversible; one day after KN-93 withdrawal, a peak of cells progresses into S and G2-M phases, providing a robust tool for cell cycle regulation studies and mechanistic investigation of CaMKII-dependent signaling.
Targets(IC50)	CaMK,Autophagy
In vitro	In primary cultured rat retinal Müller cells, KN-93 hydrochloride (10 μmol/L, 24 hours) significantly inhibited the activation of the CaMKII/NF-κB signaling pathway induced by high Vitis vinifera sugar conditions, thereby reducing the mRNA and protein expression levels of inflammatory factors such as VEGF, iNOS, and ICAM-1 [2].
In vivo	KN-93 hydrochloride (1 mg/kg, intraperitoneal injection, for 12 consecutive weeks) significantly inhibited the constitutive activation of the CaMKII/NF-κB signaling pathway in the retina of STZ-induced diabetes mellitus rat models. It effectively reduced the expression levels of vascular endothelial growth factor (VEGF), inducible nitric oxide synthase (iNOS), and intercellular adhesion molecule-1 (ICAM-1), thereby markedly alleviating diabetes mellitus-induced retinal vascular leakage [2].

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.8605 mL	9.3023 mL	18.6047 mL
5 mM	0.3721 mL	1.8605 mL	3.7209 mL
10 mM	0.186 mL	0.9302 mL	1.8605 mL
50 mM	0.0372 mL	0.186 mL	0.3721 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

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.
Li J, et al. Curcumin Attenuates Retinal Vascular Leakage by Inhibiting Calcium/Calmodulin-Dependent Protein Kinase II Activity in Streptozotocin-Induced Diabetes. Cell Physiol Biochem. 2016;39(3):1196-208.
Mamiya N, et al. Inhibition of acid secretion in gastric parietal cells by the Ca2+/calmodulin-dependent protein kinase II inhibitorKN-93. Biochem Biophys Res Commun. 1993 Sep 15;195(2):608-15.
Anderson ME, et al. KN-93, an inhibitor of multifunctional Ca++/calmodulin-dependent protein kinase, decreases early afterdepolarizations in rabbit heart. J Pharmacol Exp Ther. 1998 Dec;287(3):996-1006.