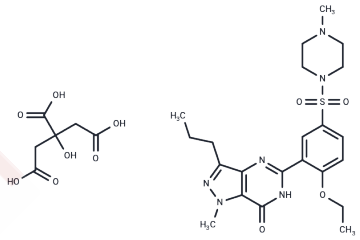
Data Sheet (Cat.No.T0467)

TargetMol

Sildenafil citrate

Chemical Properties



CAS No. : 171599-83-0

Formula: C28H38N6O11S

Molecular Weight: 666.70

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	Sildenafil citrate (UK-92480 citrate) , a cyclic guanosine monophosphate (cGMP)-specific phosphodiesterase type 5 (PDE5) Inhibitor, is used extensively for erectile dysfunction and less commonly for pulmonary hypertension.
Targets(IC50)	Apoptosis,Antibacterial,Autophagy,PDE
In vitro	In endothelial cells, Sildenafil enhances insulin signaling and nitric oxide (NO) production by mitigating oxidative stress induced by hyperglycemia and elevating intracellular calcium levels (Ca2+). Sildenafil citrate acts as a potent, reversible, selective inhibitor of phosphodiesterase type 5 (PDE5), effectively inhibiting the hydrolysis of cyclic guanosine monophosphate (cGMP) with an inhibition constant (Ki) of approximately 3 nM.
In vivo	Within anesthetized canines, Sildenafil citrate enhances erectile function of the penis following pelvic nerve stimulation. In Sprague-Dawley rats, daily administration of Sildenafil (20 mg/kg) improves erectile function in a time- and dose-dependent manner, while concurrently reducing the apoptosis index significantly and increasing the phosphorylation of akt and eNOS.
Kinase Assay	COX enzyme assay in vitro: Expression of COX protein in insect cells is determined by assessing PG-synthetic capability in homogenates from cells incubated for 3 days with COX-1 or COX-2 baculovirus. Cells expressing COX-1 or COX-2 are homogenized and incubated with arachidonic acid (10 μM). COX activity is determined by monitoring PG production. No COX activity is detected in mock-infected Sf9 cells. Celecoxib are preincubated with crude 1% CHAPS homogenates (2-10 μg of protein) for 10 minutes before addition of arachidonic acid. PGE2 formed is detected by ELISA after 10 minute incubation.
Cell Research	Sildenafil is prepared in DMSO and stored, and then diluted with appropriate medium before use[2]. Cells at approximately 90% confluence are harvested with 0.1% trypsin/0.01% ethylene diamine tetraacetic acid (EDTA) solution and seeded into a 96-well plate at a density of 2×104 cells/well and grown in RPMI-1640 containing 10% FBS for three days, followed by serum starvation for three days. Cells are then incubated for different time with various concentration of serotonin or 1 μM Sildenafil followed by serotonin with or without U0126, as indicated. Control cells are treated in the same way except sterile PBS replaced the drug. After treatment, medium is changed to fresh medium, and cells are incubated with 5 g/L of MTT for four hours. MTT is then dissolved with 150 μL of 10% DMSO for 20 minutes. The optical densities (OD) in the 96-well plates are

Cell Research	determined using a microplate reader at 570 nm[2].

Solubility Information

Solubility	DMSO: 33.33 mg/mL (49.99 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Saline: 5 mg/mL (7.5 mM),Solution. 10% DMSO+40% PEG300+5% Tween 80+45% Saline: 5 mg/mL (7.5 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	1.4999 mL	7.4996 mL	14.9993 mL
5 mM	0.300 mL	1.4999 mL	2.9999 mL
10 mM	0.150 mL	0.750 mL	1.4999 mL
50 mM	0.030 mL	0.150 mL	0.300 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

Nehra A, et al. World J Urol, 2001, 19(1), 40-45.
Shukla N, et al. Eur J Pharmacol, 2005, 517(3), 224-231.
Mulhall JP, et al. J Sex Med, 2008, 5(5), 1126-1136.