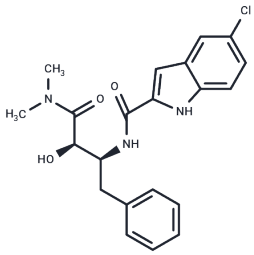
Data Sheet (Cat.No.T6455)

TargetMol

CP-91149

Chemical Properties



CAS No. : 186392-40-5

Formula: C21H22ClN3O3

Molecular Weight: 399.87

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	CP-91149 is a selective glycogen phosphorylase (GP) inhibitor with IC50 of 0.13 μM in the presence of glucose, 5- to 10-fold less potent in the absence of glucose.
Targets(IC50)	Others,Phosphorylase
In vitro	CP-91149 displays 200-fold higher inhibitory activity against human liver glycogen phosphorylase a (HLGPa) than caffeine (IC50 = 26 μM). CP-91149 (10-100 μM) inhibits glucagon-stimulated glycogenolysis in isolated rat hepatocytes in a dose-dependent manner, and in primary human hepatocytes with IC50 of ~2.1 μM. [1] CP-91149 also potently inhibits the activities of human muscle phosphorylase a and b with IC50 of 0.2 μM and ~0.3 μM, respectively. CP-91149 treatment at 2.5 μM induces inactivation of phosphorylase and sequential activation of glycogen synthase in hepatocytes, and increases glycogen synthesis by 7-fold at 5 mM glucose and by 2-fold at 20 mM glucose. CP-91149 can partially counteract the effects of phosphorylase overexpression. [2] CP-91149 also potently inhibits brain GP with IC50 of 0.5 μM in A549 cells. CP-91149 treatment at 10-30 μM causes significant glycogen accumulation in A549 and HSF55 cells. CP-91149 treatment increases G1-phase cells with a significant reduction of the S-phase population in HSF55 cells, correlated with increased expression of p21 and p27. [3] CP-91149 also promotes the dephosphorylation and activation of GS (glycogen synthase) in non-engineered or GP-overexpressing cultured human muscle cells, but exclusively in glucose-deprived cells. [4]
In vivo	Oral administration of CP-91149 to diabetic ob/ob mice at 25-50 mg/kg causes rapid (3 hours) glucose lowering by 100-120 mg/dl without producing hypoglycemia, resulting from inhibition of glycogenolysis in vivo. CP-91149 treatment does not lower glucose levels in normoglycemic, nondiabetic mice. [1] In the non-fasted Goto-Kakizaki (GK) rats, administration of CP-91149 in combination with CS-917 suppresses hepatic glycogen reduction by CS-917 and decreases plasma glucose more than single administration of CS-917. [5]
Kinase Assay	Phosphorylase enzyme assay: Human liver glycogen phosphorylase a (HLGPa, 85 ng) activity is measured in the direction of glycogen synthesis by the release of phosphate from glucose-1-phosphate at 22°C in 100 μL of buffer containing 50 mM Hepes (pH 7.2), 100 mM KCl, 2.5 mM EGTA, 2.5 mM MgCl2, 0.5 mM glucose-1-phosphate, and 1 mg/mL glycogen. Phosphate is measured at 620 nm, 20 minutes after the addition of 150 μL of 1 M HCl containing 10 mg/mL ammonium molybdate and 0.38 mg/mL malachite green.

Kinase Assay	Increasing concentrations of CP-91149 are added to the assay in 5 μL of 14% DMSO.
Cell Research	Cells are exposed to various concentrations of CP-91149 for 72hours. Viability is determined with manual cell counts following staining with trypan blue exclusion assay. Cells are fixed with 70% ethanol. DNA is stained with propidium iodide and the intensity of fluorescence is measured using a Becton-Dickinson flow cytometer at 488 nM for excitation and at 650 nM for emission. The cell cycle profile is analyzed using Modifit's Sync Wizard.(Only for Reference)

Solubility Information

Solubility	Ethanol: < 1 mg/mL (insoluble or slightly soluble), H2O: < 1 mg/mL (insoluble or slightly soluble), DMSO: 250 mg/mL (625.2 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: 10 mg/mL (25.01 mM),Solution. 10% DMSO+90% Saline: < 10 mg/mL (25.01 mM),Lower concentrations may be soluble, but exact solubility limit is unknown. *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	2.5008 mL	12.5041 mL	25.0081 mL
5 mM	0.5002 mL	2.5008 mL	5.0016 mL
10 mM	0.2501 mL	1.2504 mL	2.5008 mL
50 mM	0.050 mL	0.2501 mL	0.5002 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

Martin WH, et al. Proc Natl Acad Sci U S A, 1998, 95(4), 1776-1781.
Aiston S, et al. J Biol Chem, 2001, 276(26), 23858-23866.
Schnier JB, et al. Biochem Biophys Res Commun, 2003, 309(1), 126-134.
Lerín C, et al. Biochem J. 2004 Mar 15;378(Pt 3):1073-7.
Yoshida T, et al. J Pharmacol Sci, 2011, 115(3), 329-335.

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