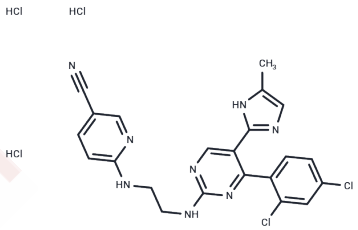
Data Sheet (Cat.No.T22657)

TargetMol

Laduviglusib trihydrochloride

Chemical Properties



CAS No. : 1782235-14-6

Formula: C22H20Cl5N8

Molecular Weight: 573.71

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	Laduviglusib trihydrochloride (CT99021 trihydrochloride) is a selective glycogen synthase kinase 3 (GSK-3) inhibitor with IC50s of 10 nM and 6.7 nM for GSK-3α and GSK-3β. Laduviglusib trihydrochloride inhibits human GSK-3β with a Ki of 9.8 nM. Laduviglusib trihydrochloride is an activator of Wnt/β-catenin signaling. Laduviglusib trihydrochloride induces autophagy.
Targets(IC50)	Autophagy,GSK-3,Wnt/beta-catenin
In vitro	Laduviglusib trihydrochloride(10 μM) lowers the viability of the ES-D3 cells by 24.7% at 2.5 μM, 56.3% at 5 μM, 61.9% at 7.5 μM and 69.2% with an IC50 of 4.9 μM[2]. Laduviglusib trihydrochloride shows >500-fold selectivity over ERK2, CDC2, and other protein kinases. Laduviglusib trihydrochloride specifically inhibits GSK3β and GSK3α with IC50s of 5nM and 10nM in vitro kinase assays[4].
In vivo	Oral administration of Laduviglusib trihydrochloride(16 mg/kg and 48 mg/kg) rapidly reduces plasma glucose with a maximal reduction of nearly 150 mg/dl in ZDF rats[1]. Laduviglusib trihydrochloride enhances mouse and human embryonic stem cells self-renewal. Laduviglusib trihydrochloride (2 mg/kg) improves survival after 14.5 Gy abdominal irradiation. Laduviglusib trihydrochloride inhibits crypt apoptosis and accumulation of p-H2AX+ cells, and improves crypt regeneration and villus height. Laduviglusib trihydrochloride blocks apoptosis, increases Lgr5+ cell survival and prevents the reduction of Olfm4, Lgr5 and CD44[5].

Solubility Information

Solubility	H2O: 17.1 mg/mL (29.81 mM),Sonication and heating are recommended. DMSO: 125 mg/mL (217.88 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Saline: 10 mg/mL (17.43 mM),Solution. 10% DMSO+40% PEG300+5% Tween-80+45% Saline: 2 mg/mL (3.49 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	1.743 mL	8.7152 mL	17.4304 mL
5 mM	0.3486 mL	1.743 mL	3.4861 mL
10 mM	0.1743 mL	0.8715 mL	1.743 mL
50 mM	0.0349 mL	0.1743 mL	0.3486 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

Ring DB, et al. Selective glycogen synthase kinase 3 inhibitors potentiate insulin activation of glucose transport and utilization in vitro and in vivo. Diabetes. 2003 Mar;52(3):588-95.
Naujok O, et al. Cytotoxicity and activation of the Wnt/beta-catenin pathway in mouse embryonic stem cells treated with four GSK3 inhibitors.BMC Res Notes. 2014 Apr 29;7:273.
Ye S, et al. Pleiotropy of glycogen synthase kinase-3 inhibition by CHIR99021 promotes self-renewal of embryonic stem cells from refractory mouse strains. PLoS One. 2012;7(4):e35892.
Bennett CN, et al. Regulation of Wnt signaling during adipogenesis. J Biol Chem. 2002 Aug 23;277(34):30998-1004.
Wang X, et al. Pharmacologically blocking p53-dependent apoptosis protects intestinal stem cells and mice from radiation. Sci Rep. 2015 Apr 10;5:8566.