Data Sheet (Cat.No.T1174)

TargetMol

Topotecan hydrochloride

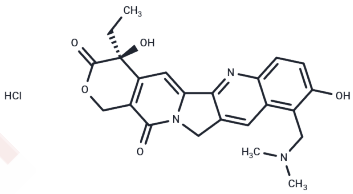
Chemical Properties

CAS No. : 119413-54-6

Formula: C23H24ClN3O5

Molecular Weight: 457.92

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	Topotecan hydrochloride (NSC609699) is an antineoplastic agent used to treat ovarian cancer.
Targets(IC50)	Apoptosis,Autophagy,Topoisomerase
In vitro	Topotecan induces effective anti-leukemic activity in a severe combined immunodeficient (SCID) mouse model of poor-prognosis acute lymphoblastic leukemia (ALL). Its administration significantly prolongs the disease-free survival in SCID mice challenged with a lethal dose of human leukemia cells at systemic drug exposure levels. Glioblastomas preferentially express TNF-related apoptosis-inducing ligand receptor 2 (TRAIL R2), and Topotecan treatment notably upregulates this expression. Furthermore, when DU-145 Luc cells are subcutaneously implanted and treated with Topotecan, significant tumor growth inhibition and regression are observed via caudal vein injection and bioluminescent imaging.
In vivo	In radiation-resistant human B-lineage acute lymphoblastic leukemia cells, Topotecan stabilizes topoisomerase I/DNA cleavable complexes, inducing rapid apoptosis regardless of high bcl-2 protein expression, and inhibits clonal growth of the cells in a dose-dependent manner. Topotecan exhibits augmented drug activity against DU-145 Luc and MCF-7 Luc cells. During DNA replication, its cytotoxic action is mediated by stabilizing the covalent complex between topoisomerase I and DNA, preventing religation of the enzyme-linked single-strand DNA breaks.
Cell Research	Topotecan is dissolved in sterile water to a stock concentration of 1 mg/mL, diluted to 6 μg/mL in cultured medium and then serially diluted 1:4 in opaque, white tissue culture-treated microplates to a final volume of 0.1 mL/well. MCF-7 Luc and DU-145 Luc cells are resuspended in 3×104 cells/mL in DMEM with high glucose containing 10% FBS and 0.5 mg/mL Geneticin; 100 μL of cells are added in each well. Plates are incubated for 4 days at 37 °C in 95% humidity/5% CO2. After incubation, 0.05 mL of 0.1 M HEPES buffer (pH 7.9) containing 50 μg/mL D-luciferin is added to each well. After incubation at room temperature for 10 minutes, the culture microplate is measured in a microplate luminometer and a molecular light imager. Results obtained with the microplate luminometer are calculated using no inhibition control wells without exogenous drug and maximum inhibition control wells containing ATP inhibitor. Results for the molecular light imager are similarly calculated using values obtained with a 5 minutes luminescent imager. (Only for Reference)

Solubility Information

Solubility	H2O: 45.8 mg/mL (100.02 mM),Sonication is recommended. DMSO: 100 mg/mL (218.38 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: 4 mg/mL (8.74 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	2.1838 mL	10.9189 mL	21.8379 mL
5 mM	0.4368 mL	2.1838 mL	4.3676 mL
10 mM	0.2184 mL	1.0919 mL	2.1838 mL
50 mM	0.0437 mL	0.2184 mL	0.4368 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

Caceres G, et al. Anticancer Drugs. 2003, 14(7), 569-574.
Uckun FM, et al. Blood. 1995. 85(10), 2817-2828.
Ciusani E, et al. J Neurooncol. 2005, 71(1), 19-25.
McCluskey AG, et al. J Nucl Med. 2012, 53(7), 1146-1154.
Romanelli S, et al. Cancer Chemother Pharmacol. 1998, 41(5), 385-390.