Data Sheet (Cat.No.T4135)

TargetMol

OTS964 hydrochloride

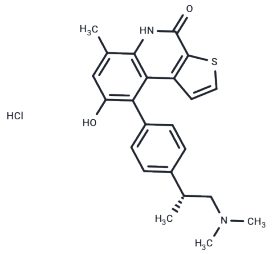
Chemical Properties

CAS No. : 1338545-07-5

Formula: C23H24N2O2S·HCl

Molecular Weight: 428.97

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	OTS964 hydrochloride (OTS964) is a potent and selective TOPK inhibitor with potential anticancer activity.
Targets(IC50)	Apoptosis,CDK,TOPK
In vitro	OTS964 inhibits the growth of TOPK-positive cells with low IC50 values [A549 (31 nM), LU-99 (7.6 nM), DU4475 (53 nM), MDAMB- 231 (73 nM), T47D (72 nM), Daudi (25 nM), UM-UC-3 (32 nM), HCT-116 (33 nM),MKN1 (38 nM), MKN45 (39 nM), HepG2 (19 nM), MIAPaca-2 (30 nM), and 22Rv1 (50 nM)], whereas its growth inhibitory effect against TOPK-negative HT29 cancer cells is significantly weaker, with IC50 of 290 nM. Although OTS964 reveals some suppressive effect on Src family kinases, the response to OTS964 in these cancer cells is not correlated with the expression of Src family kinases c-Src, Fyn, and Lyn, supporting the TOPK-dependent growth inhibitory effects of OTS964. Time lapse imaging in T47D cells shows that treatment with OTS964 induces cytokinesis defects followed by apoptosis
In vivo	Although administration of the free compound induces hematopoietic adverse reactions (leukocytopenia associated with thrombocytosis), the drug delivered in a liposomal formulation effectively causes complete regression of transplanted tumors without showing any adverse reactions in mice. Inhibition of TOPK activity with the liposomal OTS964 suppresses tumor growth through induction of cytokinesis defects and subsequent apoptosis. Although oral administration of OTS964 causes some hematopoietic toxicity, this is a transient effect. The spontaneous recovery from leukocytopenia is occured and the anticancer effectiveness of the oral drug is similar to that of the liposomal formulation, oral administration of the drug may prove to be more practical
Cell Research	Cell lines:?A549 cells, LU-99 cells, DU4475 cells, MDA-MB-231 cells, T47D cells, Daudi cells, UM-UC-3 cells, HCT-116 cells, MKN1 cells, MKN45 cells, HepG2 cells, MIAPaca-2 cells, 22Rv1 cells and HT29 cells Concentrations: --Incubation Time: 72 h Method: Cells (100 μl) are plated in 96-well plates at a certain density. The cells are allowed to adhere overnight before exposure to compounds for 72 hours at 37°C. Plates are read with a spectrophotometer at a wavelength of 450 nm. All assays are carried out in triplicate. After measuring IC50 values, we calculates the z scores to produce P values. After log transformation (base 10) of IC50 values (nM), the mean and SD are calculated for the log values of the IC50 for the 13 TOPK-positive cell lines.Method: Cells (100 μl) are plated in

Cell Research	96-well plates at a certain density. The cells are allowed to adhere overnight before exposure to compounds for 72 hours at 37°C. Plates are read with a spectrophotometer at a wavelength of 450 nm. All assays are carried out in triplicate. After measuring IC50 values, we calculates the z scores to produce P values. After log transformation (base 10) of IC50 values (nM), the mean and SD are calculated for the log values of the IC50 for the 13 TOPK-positive cell lines.
Animal Research	Animal Models: BALB/cSLC-nu/nu miceFormulation: 5% glucoseDosages: 40 mg/kgAdministration: i.v.

Solubility Information

Solubility	Ethanol: 1 mg/mL (2.33 mM),Sonication is recommended. DMSO: 79 mg/mL (184.16 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble), (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (4.66 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	2.3312 mL	11.6558 mL	23.3117 mL
5 mM	0.4662 mL	2.3312 mL	4.6623 mL
10 mM	0.2331 mL	1.1656 mL	2.3312 mL
50 mM	0.0466 mL	0.2331 mL	0.4662 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

Matsuo Y, et al. TOPK inhibitor induces complete tumor regression in xenograft models of human cancer through inhibition of cytokinesis. Sci Transl Med. 2014 Oct 22;6(259):259ra145
Wang J, Luo L, Ding Q, et al. Development of a Multi-Target Strategy for the Treatment of Vitiligo via Machine Learning and Network Analysis Methods. Frontiers in pharmacology. 2021, 12.

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