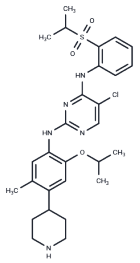
Data Sheet (Cat.No.T1791)

TargetMol

Ceritinib

Chemical Properties



CAS No. : 1032900-25-6

Formula: C28H36ClN5O3S

Molecular Weight: 558.14

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Ceritinib (LDK378) is an ALK tyrosine kinase inhibitor (IC50=200 pM) with selective, ATP-competitive, and oral activity. Ceritinib also inhibits IGF-1R, InsR, and STK22D (IC50=8/7/23 nM). Ceritinib has antitumor activity.
Targets(IC50)	ALK,IGF-1R,Serine Protease
In vitro	**METHODS**: A panel of tumor cells and multidrug resistant (MDR) cells were treated with Ceritinib (0.01-10 μM) for 72 h. Cell viability was measured by MTT assay. **RESULTS**: The IC50 values of KB, KBv200, MCF-7, MCF-7/adr, S1, S1-M1-80, HEK293/pcDNA3.1, HEK293/ABCB1 and HEK293/ABCG2-R2 cells were 1.10±0.31, 1.69±0.41, 2.15±0.33, 2.73±0.46, 1.34±0.35, 1.69±0.39, 1.50±0.37, 1.86±0.34, 2.84±0.56 μM. Based on the cytotoxicity profile, more than 85% of the cells survived at 0.5 μM Ceritinib concentration. [1] **METHODS**: Human breast cancer cell lines MDA-MB 453 and MFM223 were treated with Ceritinib (10 μM) for 15 min-4 h. Target protein expression levels were measured by Western Blot. **RESULTS**: Ceritinib treatment down-regulated AR, ACK1, HER2, and HER3 in MDA-MB-453 and MFM223 cells in a time-dependent manner. [2]
In vivo	**METHODS**: To assay anti-tumor activity in vivo, Ceritinib (25 mg/kg, administered orally) and paclitaxel (20 mg/kg, administered intraperitoneally) were administered four times every three days to nude mice bearing KBv200 xenografts. **RESULTS**: No significant differences in tumor size were found between animals treated with saline, Ceritinib or paclitaxel, respectively. However, the combination of Ceritinib and paclitaxel had a significant inhibitory effect on tumor growth compared to the other groups. [1]
Kinase Assay	All kinases were expressed as either Histidine- or GST-tagged fusion proteins using the baculovirus expression technology except for the untagged ERK2 which was produced in E. coli. The kinase activity was measured in the LabChip mobility-shift assay. The assay was performed at 30°C for 60 min. The effect of the compound on the enzymatic activity was obtained from the linear progress curves in the absence and presence of compound and routinely determined from one reading (end point measurement) [1].
Cell Research	Luciferase-expressing cells were incubated with serial dilutions of compounds or DMSO for 2-3 days. Luciferase expression was used as a measure of cell proliferation/survival and was evaluated with the Bright-Glo Luciferase Assay System. IC50 values were generated by using XLFit software [1].

Animal Research	SCID beige mice for crizotinib-resistant H2228 xenograft tumor models, nude mice for MGH006 primary explants and MGH045 cells were randomized into groups of 5, 6 or 8 mice with an average tumor volume of ~150 mm^3 and received Crizotinib or ceritinib daily treatments by oral gavage as indicated in each study. Tumor volumes were determined by using caliper measurements and calculated with the formula (Length × Width × Height)/2 [3].

Solubility Information

Solubility	DMSO: 16 mg/mL (28.67 mM),Sonication is recommended. 10% DMSO+40% PEG300+5% Tween 80+45% Saline: 0.8 mg/mL (1.43 mM),Solution. Ethanol: 3 mg/mL (5.37 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble), (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.7917 mL	8.9583 mL	17.9167 mL
5 mM	0.3583 mL	1.7917 mL	3.5833 mL
10 mM	0.1792 mL	0.8958 mL	1.7917 mL
50 mM	0.0358 mL	0.1792 mL	0.3583 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.

Reference

Hu J, et al. Effect of ceritinib (LDK378) on enhancement of chemotherapeutic agents in ABCB1 and ABCG2 overexpressing cells in vitro and in vivo. Oncotarget. 2015 Dec 29;6(42):44643-59.
Wang J, Xu X, Wang T, et al. Ceritinib increases sensitivity of AKT inhibitors to gastric cancer. European Journal of Pharmacology. 2021: 173879.
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Wu W, Li J, Yin Y, et al.Rutin attenuates ensartinib-induced hepatotoxicity by non-transcriptional regulation of TXNIP.Cell Biology and Toxicology.2024, 40(1): 38.
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Cen S Y, Lin F, Li X, et al.Crizotinib and its enantiomer suppress ferroptosis by decreasing PE-O-PUFA content.Cell Death Discovery.2024, 10(1): 360.
Li M, Bei Z C, Yuan Y, et al.In-cell bioluminescence resonance energy transfer (BRET)-based assay uncovers ceritinib and CA-074 as SARS-CoV-2 papain-like protease inhibitors.Journal of Enzyme Inhibition and Medicinal Chemistry.2024, 39(1): 2387417.

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