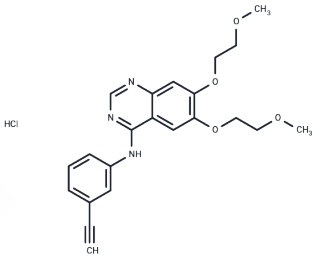
Data Sheet (Cat.No.T0373L)

TargetMol

Erlotinib hydrochloride

Chemical Properties



CAS No. : 183319-69-9

Formula: C22H23N3O4·HCl

Molecular Weight: 429.90

Storage: Store at low temperature
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	Erlotinib hydrochloride (NSC 718781) is an EGFR inhibitor (IC50: 2 nM). It is used for the treatment of non-small cell lung cancer.
Targets(IC50)	EGFR,Autophagy
In vitro	Erlotinib is a direct-acting inhibitor of human EGFR tyrosine kinase with an IC50 of 2 nM and reduces EGFR autophosphorylation in intact tumor cells with an IC50 of 20 nM. Erlotinib is also a potent inhibitor of the recombinant intracellular (kinase) domain of the EGFR (IC50: 1 nM). The proliferation of DiFi cells is strongly inhibited by Erlotinib with an IC50 of 100 nM for an 8-day proliferation assay[1].
In vivo	Erlotinib (20 mg/kg, p.o.) significantly attenuates Cisplatin (CP)-induced body weight (BW) loss when compared to the CP+vehicle (V) rats (P<0.05). Erlotinib treatment significantly improves renal function in CP-N(normal control group, NC) rats. The CP+Erlotinib (E) rats show significant reduction of the levels of Serum creatinine (s-Cr) (P<0.05), blood urea nitrogen (BUN) (P<0.05), urinary N-acetyl-β-D-glucosaminidase (NAG) index (P<0.05), and significant increase of urine volume (UV) (P<0.05) and Cr clearance (Ccr) (P<0.05) compare to the CP+V rats [2]. Erlotinib inhibits tumor growth in human head and neck carcinoma HN5 tumor xenografts in mice with an ED50 value of 9 mg/kg [3].
Kinase Assay	96-well plates are coated by incubation overnight at 37 °C with 100 µL per well of 0.25 mg/mL PGT in PBS. Excess PGT is removed by aspiration, and the plate is washed 3 times with washing buffer (0.1% Tween 20 in PBS). The kinase reaction is performed in 50 µL of 50 mM HEPES (pH 7.3), containing 125 mM sodium chloride, 24 mM magnesium chloride, 0.1 mM sodium orthovanadate, 20 µM ATP, 1.6 µg/mL EGF, and 15 ng of EGFR, affinity purified from A431 cell membranes. Erlotinib HCl in DMSO is added to give a final DMSO concentration of 2.5%. Phosphorylation is initiated by addition of ATP and proceeded for 8 minutes at room temperature, with constant shaking. The kinase reaction is terminated by aspiration of the reaction mixture and is washed 4 times with washing buffer. Phosphorylated PGT is measured by 25 minutes of incubation with 50 µL per well HRP-conjugated PY54 anti-phosphotyrosine antibody, diluted to 0.2 µg/mL in blocking buffer (3% BSA and 0.05% Tween 20 in PBS). The antibody is removed by aspiration, and the plate is washed 4 times with washing buffer. The colorimetric signal is developed by addition of TMB Microwell Peroxidase Substrate, 50µL per well, and stopped by the

Kinase Assay	addition of 0.09 M sulfuric acid, 50 μL per well. Phosphotyrosine is estimated by measurement of absorbance at 450 nm. The signal for controls is typically 0.6-1.2 absorbance units, with essentially no background in wells without AlP, EGFR, or PGT and is proportional to the time of incubation for 10 minutes [1].
Cell Research	Exponentially growing cells are seeded in 96-well plastic plates and exposed to serial dilutions of erlotinib (30 nM-20 μM), pemetrexed, or the combination at a constant concentration ratio of 4:1 in triplicates for 72 h. Cell viability is assayed by cell count and the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide assay. Growth inhibition is expressed as the percentage of surviving cells in drug-treated versus PBS-treated control cells (which is considered as 100% viability). The IC50 value is the concentration resulting in 50% cell growth inhibition by a 72-h exposure to the drug(s) compared with untreated control cells and is calculated by the CalcuSyn software [4].
Animal Research	Six-week-old male SD rats weighing 180 to 210 g are used. Cisplatin (CP) is freshly prepared in saline at a concentration of 1 mg/mL and then injected intraperitoneally in SD rats (n=28) at a dose of 7 mg/kg on day 0. To investigate the effect of Erlotinib, 28 CP-N rats are divided into two groups. Separate groups (n=14) each of animals are administered with either Erlotinib (20 mg/kg) (CP+E, n=14) or vehicle (CP+V, n=14) daily by oral gavage from the day -1 (24 hours prior to the CP injection) to day 3. Vehicle-treated groups receive an equivalent volume of saline. Five male SD rats at the age of 6 weeks are used as a normal control group (NC, n=5). The NC rats are given an equivalent volume of saline daily by oral gavage from the day -1 to day 3. At day 4 (96 hours after CP injection), each rat is anesthetized and sacrificed by exsanguination after the cardiac puncture; blood is collected by cardiac puncture and kidneys are collected. Renal tissue is divided; separate portions are snap-frozen in liquid nitrogen or fixed in 2% paraformaldehyde/phosphate-buffered saline (PBS) for later use. All surgery is performed under diethyl ether gas anesthesia, and all efforts are made to minimize suffering [2].

Solubility Information

Solubility	DMSO: 5.43 mg/mL (12.63 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.3261 mL	11.6306 mL	23.2612 mL
5 mM	0.4652 mL	2.3261 mL	4.6522 mL
10 mM	0.2326 mL	1.1631 mL	2.3261 mL
50 mM	0.0465 mL	0.2326 mL	0.4652 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

Moyer JD, et al. Induction of apoptosis and cell cycle arrest by CP-358,774, an inhibitor of epidermal growth factor receptor tyrosine kinase. Cancer Res. 1997, 57(21), 4838-4848.
Wada Y, et al. Epidermal growth factor receptor inhibition with erlotinib partially prevents cisplatin-induced nephrotoxicity in rats. PLoS One. 2014 Nov 12;9(11):e111728.
Pollack VA, et al. Inhibition of epidermal growth factor receptor-associated tyrosine phosphorylation in human carcinomas with CP-358,774: dynamics of receptor inhibition in situ and antitumor effects in athymic mice. J Pharmacol Exp Ther. 1999 Nov;291(2):739-48.
Li T, et al. Schedule-dependent cytotoxic synergism of pemetrexed and erlotinib in human non-small cell lung cancer cells. Clin Cancer Res. 2007 Jun 1;13(11):3413-22.

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