Data Sheet (Cat.No.T212907)

TargetMol

NGI-189

Chemical Properties

CAS No. :	2763063-26-7
Formula:	C22H30N4O4S2
Molecular Weight:	478.63
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	NGI-189 is a selective OST-A inhibitor. Its main mechanism is to inhibit the activity of the STT3A catalytic subunit in the OST complex, thereby reducing the N-glycosylation level of target glycoproteins. It effectively blocks the conduction of oncogenic and bypass signaling pathways, significantly downregulates the phosphorylation levels of EGFR, AKT, p70S6K and S6RP proteins, and induces cell cycle arrest and apoptosis. In non-small cell lung cancer (NSCLC) xenograft models, NGI-189 significantly inhibits tumor growth and induces tumor regression, making it a potential tool molecule for mechanism and efficacy research of EGFR-mutant non-small cell lung cancer.
Targets(IC50)	Others
In vitro	Methods: ER-LucT reporter cells, multiple EGFR-mutant NSCLC cell lines (including PC9, H3255, etc.), as well as wild-type HEK293, STT3A-knockout, and STT3B-knockout HEK293 cells were used in this study. Cells were treated with different concentrations of NGI-189 for various durations. Indicators related to N-glycosylation level, cell proliferation, colony formation, signaling pathway activity, cell cycle distribution, and apoptosis were detected. Meanwhile, PC9-CD8-EGFR-CL cells were used to verify the functional dependence of NGI-189 action, and its effects on drug-resistant NSCLC cells were comparatively analyzed. Results: 1.NGI-189 potently inhibited N-glycosylation in ER-LucT reporter cells with an IC_{50} of 0.09 μM. 2.NGI-189 (5 μM, 5 days of treatment) inhibited the proliferation of parental EGFR-mutant PC9 NSCLC cells by approximately 70%. This inhibitory effect was markedly reversed in PC9-CD8-EGFR-CL cells expressing N-glycosylation-independent EGFR. 3.NGI-189 (0–25 μM, 24 h of treatment) preferentially suppressed the OST-A complex in HEK293 cell lines and reduced the N-glycosylation levels of EGFR and Halo3N in a dose-dependent manner. Complete inhibition of OST-A-dependent glycosylation was only observed in STT3B-knockout cells. 4.NGI-189 (10 μM, 24 h of treatment) reduced the N-glycosylation levels of PTK7 and MET in osimertinib-resistant H1975-OR cells and gefitinib-resistant HCC827-GR cells, and further inhibited the downstream STAT3 signaling pathway. 5.NGI-189 (5 μM) reduced the colony formation survival rate of EGFR-mutant NSCLC cells, including PC9, H3255, HCC-4006, and HCC-2935. 6.NGI-189 (5 μM, 24 h of treatment) inhibited EGFR and its downstream AKT/p70

In vitro	S6K/S6RP signaling pathways, and upregulated the expression of the pro-apoptotic protein Bim in H3255, HCC-4006, and HCC-2935 cells. 7.NGI-189 (5 μM, 24 h of treatment) induced G1-phase cell cycle arrest in EGFR-mutant PC9, H3255, and HCC-2935 NSCLC cells. Notably, both H3255 and HCC-2935 cells exhibited obvious sub-G1 phase cell death [1].
In vivo	Methods: EGFR-mutant non-small cell lung cancer (NSCLC) patient-derived xenograft (PDX) models, gefitinib-resistant HCC827-GR, and osimertinib-resistant H1975-OR NSCLC xenograft models were established. NGI-189 was administered via intraperitoneal injection at a dose of 10 mg/kg, with dosing schedules set as once every two days for a total of eight injections or administered as needed according to different models. A single-agent treatment group (10 mg/kg, intraperitoneal injection, once every two days for three injections) was additionally arranged to evaluate mouse tolerance. Toxicity was assessed via hematological detection and organ histopathological examination, and tumor growth and regression were continuously monitored. Results: 1.NGI-189 (10 mg/kg, intraperitoneal injection, once every two days for eight administrations) significantly delayed tumor growth in EGFR-mutant NSCLC PDX models and gefitinib-resistant HCC827-GR xenograft models [1]. 2.NGI-189 (10 mg/kg, intraperitoneal injection, once every two days) induced marked tumor regression in osimertinib-resistant H1975-OR NSCLC xenografts [1]. 3.NGI-189 (10 mg/kg, intraperitoneal injection, once every two days for three administrations) was well tolerated in mice. No obvious toxicity was observed according to hematological assays and organ histopathological examination [1].

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.0893 mL	10.4465 mL	20.893 mL
5 mM	0.4179 mL	2.0893 mL	4.1786 mL
10 mM	0.2089 mL	1.0446 mL	2.0893 mL
50 mM	0.0418 mL	0.2089 mL	0.4179 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

Baro M, et al. Redundancy of the OST catalytic subunit facilitates therapeutic targeting of N-glycosylation. Cell Chem Biol. 2025;32(6):839-853.e6.

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