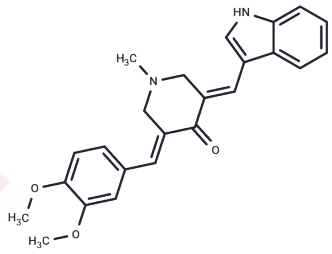
Data Sheet (Cat.No.T5181)

TargetMol

CA-5f

Chemical Properties



CAS No. : 1370032-19-1

Formula: C24H24N2O3

Molecular Weight: 388.46

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	CA-5f is a potent late-stage macroautophagy/autophagy inhibitor that works by inhibiting autophagosome-lysosome fusion.
Targets(IC50)	Apoptosis,Autophagy,ATG,p62
In vitro	Treatment of human umbilical vein endothelial cells (HUVECs) with CA-5f for 1 h suppressed the levels of cytoskeletal proteins and membrane traffic proteins. CA-5f exhibited strong cytotoxicity against A549 NSCLC cells, but low cytotoxicity to normal HUVECs, by increasing mitochondrial-derived reactive oxygen species (ROS) production.
In vivo	CA-5f effectively suppressed the growth of A549 lung cancer xenograft as a single agent with an excellent tolerance in vivo. Results from western blot, immunofluorescence, and TdT-mediated dUTP nick end labeling (TUNEL) assays showed that CA-5f inhibited autophagic flux, induced apoptosis, and did not affect the level of CTSB (cathepsin B) and CTSD (cathepsin D) in vivo, which were consistent with the in vitro data.
Cell Research	A549 cells or HUVECs were seeded into 100-mm culture dishes. When cells reached 80% confluency, they were exposed to DMSO or CA-5f for 6 h or 24 h. Then the cells were fixed, dehydrated, embedded, sectioned, and stained as previously described. Finally, the ultrathin sections of these samples were observed under a JEM-1230 transmission electron microscopy.
Animal Research	Four-week-old BALB/c nude mice were purchased from Beijing Vital River Laboratory Animal Technology Co., Lt and kept in specific pathogen-free conditions at the Experimental Animal Center in the Institute of Medicine in Zhengzhou University. Nude mice underwent subcutaneous injection of A549 cells (1 × 10^6) at the right scapula. 8 days after A549 cell implantation, mice exhibited palpable tumors, then they were randomly divided into 2 groups (each group n = 5). CA-5f was injected via caudal vein every 2 days for up to 30 days. DMSO was used as a control. From the initial injection, the tumor size was measured every 2 days. Tumor volumes were calculated as tumor length × (square of width)/2. At the end of the experiment, all mice were sacrificed and the tumors were resected immediately and photographed. The weight of each tumor was measured.

Solubility Information

Solubility	DMSO: 55 mg/mL (141.58 mM),Sonication is recommended. H2O: Insoluble, (< 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 (5.15 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	2.5743 mL	12.8713 mL	25.7427 mL
5 mM	0.5149 mL	2.5743 mL	5.1485 mL
10 mM	0.2574 mL	1.2871 mL	2.5743 mL
50 mM	0.0515 mL	0.2574 mL	0.5149 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

Zhang L, et al. Identification of compound CA-5f as a novel late-stage autophagy inhibitor with potent anti-tumor effect against non-small cell lung cancer. Autophagy. 2019 Mar;15(3):391-406.