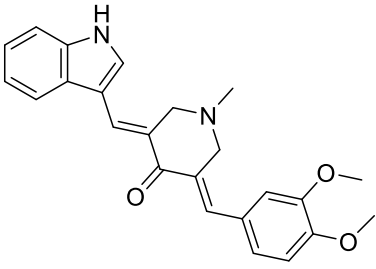


Product data sheet



MedKoo Cat#: 555459 Name: CA-5f CAS#: 1370032-19-1 Chemical Formula: C ₂₄ H ₂₄ N ₂ O ₃ Exact Mass: 388.1787 Molecular Weight: 388.467	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

CA-5f is a potent late-stage autophagy inhibitor with potent anti-tumor effect against non-small cell lung cancer. CA-5f exhibited strong cytotoxicity against A549 non-small cell lung cancer (NSCLC) cells. CA-5f effectively suppressed the growth of A549 lung cancer xenograft as a single agent with an excellent tolerance in vivo.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	77.5	199.51

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.57 mL	12.87 mL	25.74 mL
5 mM	0.51 mL	2.57 mL	5.15 mL
10 mM	0.26 mL	1.29 mL	2.57 mL
50 mM	0.05 mL	0.26 mL	0.51 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Zhang L, Qiang P, Yu J, Miao Y, Chen Z, Qu J, Zhao Q, Chen Z, Liu Y, Yao X, Liu B, Cui L, Jing H, Sun G. 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. doi: 10.1080/15548627.2018.1511503. Epub 2018 Sep 6. PMID: 30145925; PMCID: PMC6351124.

In vivo study

1. Zhang L, Qiang P, Yu J, Miao Y, Chen Z, Qu J, Zhao Q, Chen Z, Liu Y, Yao X, Liu B, Cui L, Jing H, Sun G. 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. doi: 10.1080/15548627.2018.1511503. Epub 2018 Sep 6. PMID: 30145925; PMCID: PMC6351124.

7. Bioactivity

Biological target:

CA-5f is a potent late-stage macroautophagy/autophagy inhibitor via inhibiting autophagosome-lysosome fusion.

In vitro activity

Product data sheet



Co-incubation of cells with CA-5f and CQ or bafilomycin A1 did not induce an increase in LC3B-II levels compared with CA-5f treatment alone (Figure 2(b)), confirming that CA-5f inhibits the degradation of autophagosomes. Additionally, CA-5f evoked a more significant accumulation of LC3B-II in the nutrient-free condition compared with Earle's balanced salt solution (EBSS) incubation alone or CA-5f treatment under the normal growth conditions (Figure 2(c)). To corroborate the effect of CA-5f on autophagic flux, we performed fluorescence microscopy using a tandem mRFP-GFP-LC3B reporter. GFP (green fluorescent protein), but not RFP (red fluorescent protein), loses its fluorescence in the acidic and proteolytic environment of the lysosomes. Thus, both GFP and RFP signals as yellow puncta correspond to immature autophagosomes, whereas autolysosomes will only fluoresce red. As expected, CA-5f markedly increased the number of yellow puncta both in A549 cells and HUVECs, which was similar to, but more potent than, the effects of CQ (Figure 2(d,e)). In contrast, many red puncta with few green puncta were observed in EBSS-incubated cells (Figure 2(d)). Co-incubation of cells with EBSS and CA-5f led to further increase of the number of yellow puncta compared with EBSS incubation alone or CA-5f treatment alone under the normal conditions (Figure 2(d,e)). Additionally, the live imaging of A549 cells and HUVECs expressing GFP-RFP-LC3B was obtained using time-lapse confocal microscopy. After EBSS treatment, most of the green fluorescence disappeared gradually, indicating an efficient autophagy response, while CA-5f-treated cells showed both red and green fluorescence (yellow puncta), indicating an impaired autophagic flux (Video S1-S4). These data collectively confirmed that CA-5f is a late-stage autophagy inhibitor.

Reference: Autophagy. 2019 Mar;15(3):391-406. <https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/30145925/>

In vivo activity

To evaluate whether CA-5f exhibited the same effects in vivo, nude mice bearing established A549 tumors were injected with CA-5f (40 mg/kg) via caudal vein every 2 days for up to 30 days. CA-5f injection at this dosage was very well tolerated by nude mice with no obvious toxicity throughout the course of experiment. There was no significant difference in the mean body weight between control and CA-5f-treated groups (Figure 7(a)). As shown in Figure 7(b,c), tumor volume and weight increased dramatically in the control mice and were significantly suppressed in CA-5f-treated mice. The appearance of tumors was consistent with the data of tumor volume and weight (Figure 7(d)), indicating that CA-5f has the potential for development as a new anti-tumor agent.

Reference: Autophagy. 2019 Mar;15(3):391-406. <https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/30145925/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.