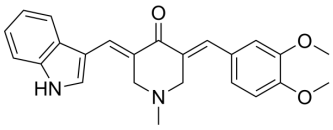
CA-5f

Cat. No.:	HY-112698
CAS No.:	1370032-19-1
Molecular Formula:	$C_{24}H_{24}N_2O_3$
Molecular Weight:	388.46
Target:	Autophagy; Apoptosis; p62; Atg8/LC3
Pathway:	Autophagy; Apoptosis
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 77.5 mg/mL (199.51 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	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

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (5.35 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.08 mg/mL (5.35 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (5.35 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

CA-5f is a potent late-stage macroautophagy/autophagy inhibitor via inhibiting autophagosome-lysosome fusion. CA-5f increases LC3B-II (a marker to monitor autophagy) and SQSTM1 protein, and also increases ROS production. Anti-tumor activity[1].

IC_{50} & Target

Macroautophagy/autophagy[1]

In Vitro

CA-5f (0-40 μM, 6 hour) concentration- and time-dependently elevates the level of LC3B-II (a marker to monitor autophagy)

and SQSTM1 protein both in A549 cells and HUVECs[1].
?CA-5f (20 μM, 6 hours) inhibits the degradation of autophagosomes when treated alone or in combination Bafilomycin A1 (100 nM) or Chloroquine (30 μM) in A549 cells and HUVECs[1].
?CA-5f (20 μM) neither impairs the hydrolytic function nor the quantity of lysosomes[1].
?CA-5f (20 μM, 96 hours) inhibits the growth of A549 cells, and less cytotoxic to normal HUVECs[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	A549, HUVECs
Concentration:	20 μM
Incubation Time:	96 hours
Result:	Exhibited more cytotoxicity against A549 cells compared with normal HUVECs.

Western Blot Analysis[1]

Cell Line:	A549 cells and HUVECs
Concentration:	0-40 μM
Incubation Time:	6 hours
Result:	Elevated LC3B-II (a marker to monitor autophagy) and SQSTM1 protein levels in a concentration- and time-dependent manner.

In Vivo

CA-5f (40 mg/kg, i.p., every 2 days for up to 30 days) is well tolerated, and potently inhibits the growth of tumor in nude mice bearing A549 lung cancer cells[1].
?CA-5f (40 mg/kg, i.p.) suppresses autophagic flux and induces apoptosis in nude mice bearing A549 lung cancer cells[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Nude mice bearing A549 lung cancer cells[1]
Dosage:	40 mg/kg
Administration:	Injected via caudal vein, every 2 days for up to 30 days
Result:	Significantly suppressed tumor volume and weight in mice, increased the number of apoptotic cells in mice.

REFERENCES

[1]. 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.

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