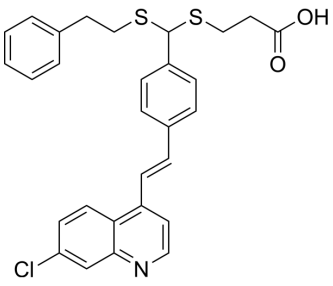
LV-320

Cat. No.:	HY-112711
CAS No.:	2449093-46-1
Molecular Formula:	$C_{29}H_{26}ClNO_2S_2$
Molecular Weight:	520.11
Target:	Autophagy; Cathepsin; Atg4
Pathway:	Autophagy; Metabolic Enzyme/Protease
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 : 135 mg/mL (259.56 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.9227 mL	9.6134 mL	19.2267 mL
	5 mM	0.3845 mL	1.9227 mL	3.8453 mL
	10 mM	0.1923 mL	0.9613 mL	1.9227 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: ≥ 2.25 mg/mL (4.33 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.25 mg/mL (4.33 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

LV-320 is a potent and uncompetitive ATG4B inhibitor with an IC_{50} of 24.5 μM and a K_d of 16 μM. LV-320 inhibits ATG4B enzymatic activity, blocks autophagic flux in cells, and is stable, non-toxic and active in vivo[1].

IC_{50} & Target

IC50: 24.5 μM (ATG4B); Kd: 16 μM (ATG4B)[1]

In Vitro

LV-320 (0-120 μM; SKBR3, MCF7, JIMT1, and MDA-MB-231 cells) treatment results in a dose-dependent increase in endogenous LC3B-II and protein p62 levels in all four cell lines[1].
LV-320 (120 μM; 48 hours; MDA-MB-231 cells) treatment results in an increase in LC3B-II, indicating that LV-320 blocks autophagic flux[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[1]

Cell Line:	SKBR3, MCF7, JIMT1, and MDA-MB-231 cells
Concentration:	0 μM, 25 μM, 50 μM, 75 μM, 100 μM, or 120 μM
Incubation Time:	
Result:	Resulted in a dose-dependent increase in endogenous LC3B-II and protein p62 levels in all four cell lines.

Cell Autophagy Assay[1]

Cell Line:	MDA-MB-231 cells
Concentration:	120 μM
Incubation Time:	48 hours
Result:	Blocked autophagic flux.

In Vivo

LV-320 (100-200 mg/kg; oral gavage; three times over two days; GFP-LC3 mice) treatment results in a terminal blood level of 169 μM and a liver level of 104 μM. The expression of GFP-LC3 puncta is significantly greater accumulation in LV-320 treated animals compared to controls. LC3B-II protein is also increased in LV-320-treated animals. The treatment do not cause significant toxicity in mice at either dose[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	GFP-LC3 mice (females, 9-14 weeks)[1]
Dosage:	100 mg/kg or 200 mg/kg
Administration:	Oral gavage; three times over two days (Pharmacokinetic study)
Result:	Terminal blood levels were 169 μM and liver levels were 104 μM. LC3B-II protein level was also increased.

REFERENCES

[1]. Bosc D, et al. A new quinoline-based chemical probe inhibits the autophagy-related cysteine protease ATG4B. Sci Rep. 2018 Aug 3;8(1):11653. doi: 10.1038/s41598-018-29900-x.

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