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Lieferung & Zahlungsart

siehe unsere Liefer- und Versandbedingungen

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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LHVS

Cat. No.: HY-128971

CAS No.: 170111-28-1

Molecular Formula: $C_{28}H_{37}N_3O_5S$

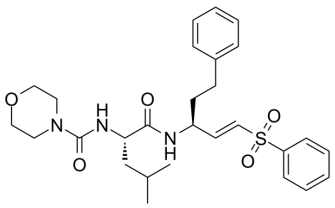
Molecular Weight: 527.68

Target: Cathepsin; Parasite

Pathway: Metabolic Enzyme/Protease; Anti-infection

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (189.51 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.8951 mL	9.4754 mL	18.9509 mL
	5 mM	0.3790 mL	1.8951 mL	3.7902 mL
	10 mM	0.1895 mL	0.9475 mL	1.8951 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: ≥ 2.5 mg/mL (4.74 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (4.74 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (4.74 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

LHVS is a potent, non-selective, irreversible, cell-permeable cysteine protease and cathepsin inhibitor. LHVS decreases actin ring formation. LHVS inhibits T. gondii invasion with an IC_{50} of 10 μM[1][2][3].

IC_{50} & Target				
	cathepsin S	cathepsin K	cathepsin L	Cathepsin B

In Vitro

LHVS (5 μM, 2 h) results in a 50% reduction of actin ring formation in wild-type osteoclasts when compared with untreated osteoclasts[1].

LHVS acts in a dose-dependent manner on osteoclasts and at 5 μM, LHVS inhibits cathepsins K, L, S, and B[1].
LHVS (1-5 nM) can inhibit specifically cathepsin S in HOM2 cells, leaving other cysteine proteases functionally active[3].
LHVS impairs tachyzoite attachment by blocking the release of at least two key invasion proteins, MIC2 and M2AP, from the micronemes[2].
LHVS (50 μM) selectively impairs microneme protein secretion[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

LHVS (3-30 mg/kg, SC, once) shows anti-hyperalgesic effect in neuropathic rats[4].
LHVS (30 nmol per rat, spinal delivery, daily) is antinociceptive in neuropathic rats[5].
LHVS (1-50 nmol per rat, Intrathecal injection, daily) reverses established neuropathic mechanical hyperalgesia in 14-day neuropathic rats[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male Wistar rats (180-220 g)[4]
Dosage:	3-30 mg/kg
Administration:	SC, once
Result:	Produced a dose-dependent reversal of the mechanical hyperalgesia which lasted up to 3 h in neuropathic rats. In contrast, a single systemic administration of LHVS did not reverse mechanical allodynia in neuropathic rats.

Animal Model:	Male Wistar rats received a partial ligation of the left sciatic nerve (PNL)[5]
Dosage:	30 nmol per rat
Administration:	Spinal delivery, Daily
Result:	Failed to prevent the development of allodynia when continuous delivery from day 0 to day 7 post-PNL, but significantly reversed allodynia on day 7 post-PNL. In addition, the delivery of LHVS from day 7 to day 14 post-PNL significantly reversed established mechanical allodynia from day 8.

Animal Model:	Male Wistar rats received a partial ligation of the left sciatic nerve (PNL)[5]
Dosage:	1, 10 or 50 nmol per rat
Administration:	Intrathecal injection, Daily
Result:	Reduced established mechanical hyperalgesia. This effect was dose-dependent and remained significant until 3 h after administration of the highest dose.

REFERENCES

[1]. Riese RJ, et al. Essential role for cathepsin S in MHC class II-associated invariant chain processing and peptide loading. Immunity. 1996 Apr;4(4):357-66.

[2]. Barclay J, et al. Role of the cysteine protease cathepsin S in neuropathic hyperalgesia. Pain. 2007 Aug;130(3):225-234.

[3]. Clark AK, et al. Inhibition of spinal microglial cathepsin S for the reversal of neuropathic pain. Proc Natl Acad Sci U S A. 2007 Jun 19;104(25):10655-60.

[4]. Wilson SR, et al. Cathepsin K activity-dependent regulation of osteoclast actin ring formation and bone resorption. J Biol Chem. 2009 Jan 23;284(4):2584-92.

[5]. Teo CF, et al.Cysteine protease inhibitors block Toxoplasma gondii microneme secretion and cell invasion. Antimicrob Agents Chemother. 2007 Feb;51(2):679-88.

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