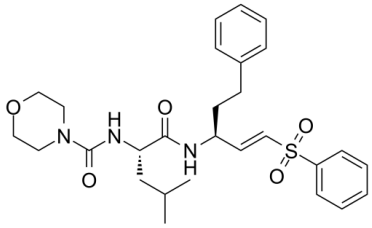
Data Sheet

Product Name:	LHVS
Cat. No.:	CS-0102928
CAS No.:	170111-28-1
Molecular Formula:	$C_{28}H_{37}N_3O_5S$
Molecular Weight:	527.68
Target:	Cathepsin; Parasite
Pathway:	Anti-infection; Metabolic Enzyme/Protease
Solubility:	DMSO : 100 mg/mL (189.51 mM; Need ultrasonic)



BIOLOGICAL ACTIVITY:

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]. IC50 & Target: Cysteine protease, Cathepsins S, Cathepsins K, Cathepsins L, Cathepsins B[1] **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]. **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].

PROTOCOL (Extracted from published papers and Only for reference)

Animal Administration: LHVS was solubilized in 20% Cremophor EL/saline[5].

References:

[1]. 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.

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

[3]. 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.

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

[5]. 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.

CAIndexNames:

4-Morpholinecarboxamide, N-[(1S)-3-methyl-1-[[[(1S,2E)-1-(2-phenylethyl)-3-(phenylsulfonyl)-2-propen-1-yl]amino]carbonyl]butyl]-

SMILES:

O=C(N1CCOCC1)N[C@H](C(N[C@@H](CCC2=CC=CC=C2)/C=C/S(=O)(C3=CC=CC=C3)=O)=O)CC(C)C

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