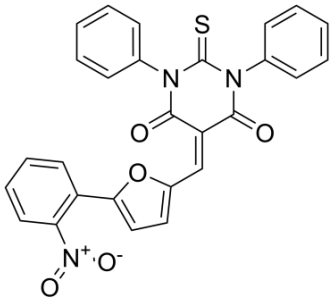
Ucf-101

Cat. No.:	HY-125959
CAS No.:	313649-08-0
Molecular Formula:	$C_{27}H_{17}N_3O_5S$
Molecular Weight:	495.51
Target:	Apoptosis
Pathway:	Apoptosis
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 : 12.5 mg/mL (25.23 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.0181 mL	10.0906 mL	20.1812 mL
	5 mM	0.4036 mL	2.0181 mL	4.0362 mL
	10 mM	0.2018 mL	1.0091 mL	2.0181 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 1.79 mg/mL (3.61 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: 1.67 mg/mL (3.37 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Ucf-101 is a selective and competitive inhibitor of pro-apoptotic protease Omi/HtrA2, with an IC_{50} of 9.5 μM for His-Omi. Ucf-101 exhibits very little activity against various other serine proteases (IC_{50}>200 μM). Ucf-101 has a natural red fluorescence at 543 nm that is used to monitor its ability to enter mammalian cells. Ucf-101 has a significant cardioprotective effect against MI/R injury and also has certain neuroprotective effect[1][2][3].

IC_{50} & Target

IC50: 9.5 μM (His-Omi)[1]

In Vitro

Ucf-101 (20-100 μM; 30 min) inhibits the proteolytic activity of MBP-Omi-(134-458)[1].
Ucf-101 (10-100 μM; pretreated for 10 min) inhibits His-Omi-(134-458) activity in a concentration-dependent manner when assayed with His-Omi-(134-458) and β-casein[1].

	Ucf-101 (1-25 μM; 36 h) inhibits Omi-induced caspase-independent apoptosis of mouse embryo caspase-9 (-/-) null fibroblasts[1]. Ucf-101 (1-20 μM; pretreated for 1 h) inhibits the 6-OHDA-induced apoptosis of Parkinson's disease (PD)-PC12 cells at the low concentration (2.5 μM), and increases the apoptosis rate at the high concentration (≥10 μM)[3]. Ucf-101 (2.5 μM; pretreated for 1 h) downregulates the expression of Glucose-regulated protein 78 (Bip/Grp78) and C/EBP homologous protein (CHOP) in PD- PC12 cells[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Ucf-101 (0.6-1.8 μmol/kg; a single i.p.) reduces postischemic myocardial apoptosis and myocardial infarct size in mice[2]. Ucf-101 (1.5 μmol/kg; a single i.p.) improves the APO-induced rotational behavior, increases the TH-positive cells and reverses the reduction of DA neurons in the PD rats[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Adult male mice (20-25 g) with myocardial ischemia/reperfusion (MI/R) injury[1]
Dosage:	0.6, 1.5, 1.8 μmol/kg
Administration:	I.p. 10 minutes before reperfusion
Result:	Reduced terminal dUTP nick end-labeling staining, incidence of DNA ladder fragmentation, and infarct size.

REFERENCES

[1]. Cilenti L, et, al. Characterization of a novel and specific inhibitor for the pro-apoptotic protease Omi/HtrA2. J Biol Chem. 2003 Mar 28;278(13):11489-94.

[2]. Liu HR, et, al. Role of Omi/HtrA2 in apoptotic cell death after myocardial ischemia and reperfusion. Circulation. 2005 Jan 4;111(1):90-6.

[3]. Li Y, et, al. Ucf-101 protects in vivoandin vitro models of PD against 6-hydroxydopamine toxicity by alleviating endoplasmic reticulum stress via the Wnt/β-catenin pathway. J Clin Neurosci. 2020 Jan;71:217-225.

Caution: Product has not been fully validated for medical applications. For research use only.

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