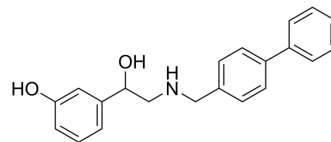


AC-73

Cat. No.:	HY-122214		
CAS No.:	775294-71-8		
Molecular Formula:	C ₂₁ H ₂₁ NO ₂		
Molecular Weight:	319.4		
Target:	Autophagy		
Pathway:	Autophagy		
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 : ≥ 250 mg/mL (782.72 mM)

* "≥" means soluble, but saturation unknown.

	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	3.1309 mL	15.6544 mL	31.3087 mL
	5 mM	0.6262 mL	3.1309 mL	6.2617 mL
	10 mM	0.3131 mL	1.5654 mL	3.1309 mL

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

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.08 mg/mL (6.51 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.08 mg/mL (6.51 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.08 mg/mL (6.51 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

AC-73 is a first specific, orally active inhibitor of cluster of differentiation 147 (CD147), which specifically disrupts CD147 dimerization, thereby mainly suppressing the CD147/ERK1/2/STAT3/MMP-2 pathways. AC-73 inhibits the motility and invasion of hepatocellular carcinoma cells^[1]. AC-73 is also an anti-proliferative agent and an inducer of autophagy in leukemic cells^[2].

IC₅₀ & Target

CD147^[1]

In Vitro

AC-73 (5-10 μ M; 24 hours; SMMC-7721 and Huh-7 cells) treatment significantly decreases the migration ability of SMMC-7721 and Huh-7 cells in a dose-dependent manner and decreases the invasion of two HCC cells in a dose-dependent manner at 24 hours. AC-73 treatment reduces HCC metastases. There are no obvious effects on cell viability when two HCC cells are treated with AC-73 at a maximum concentration of 20 μ M. The possible binding sites of AC-73 on CD147 included Glu64 and Glu73 in the N-terminal IgC2 domain, which two residues are located in the dimer interface of CD147^[1].

AC-73 (5-10 μ M; 24 hours; SMMC-7721 cells) treatment could significantly inhibit both MMP-2 and MMP-9 mRNA expression at the concentration of 10 μ M, especially MMP-2, but no obvious effect on MMP-1, MMP-3, MMP-7, MMP-11 nor MMP-13. AC-73 could dose dependently reduce the expression of MMP-2 mRNA level and secretion of the protein level using RT-qPCR analysis and gelatin zymography experiments^[1].

AC-73 (5-20 μ M; 6 hours; SMMC-7721 cells) treatment dose-dependently suppresses the phosphorylation of ERK1/2 and STAT3^[1].

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

RT-PCR^[1]

Cell Line:	SMMC-7721 cells
Concentration:	5 μ M or 10 μ M
Incubation Time:	24 hours
Result:	Significantly inhibited both MMP-2 and MMP-9 mRNA expression at the concentration of 10 μ M. Dose dependently reduced the expression of MMP-2 mRNA level and secretion of the protein level using RT-qPCR analysis and gelatin zymography experiments.

Western Blot Analysis^[1]

Cell Line:	SMMC-7721 cells
Concentration:	5 μ M, 10 μ M or 20 μ M
Incubation Time:	6 hours
Result:	The phosphorylation of ERK1/2 and STAT3 was dose-dependently suppressed.

In Vivo

AC-73 (25-50 mg/kg; for 4 weeks; Male BALB/c nu/nu mice) treatment significantly decreases the incidence of metastatic foci in nude mice. AC-73 inhibits the phosphorylation of ERK1/2 and STAT3 in a dose-dependent manner. MMP-2 is also reduced by AC-73. AC-73 could not inhibit tumor cell proliferation in vivo^[1].

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

Animal Model:	Male BALB/c nu/nu mice (4-6 weeks) with SMMC-7721 cells ^[1]
Dosage:	25 mg/kg, 50 mg/kg
Administration:	Injected; daily; for 3 weeks
Result:	Significantly decreased the incidence of metastatic foci in nude mice. Inhibited the phosphorylation of ERK1/2 and STAT3 in a dose-dependent manner. MMP-2 was also reduced.

CUSTOMER VALIDATION

- Cancer Lett. 2021 Aug 30;S0304-3835(21)00428-6.
- J Crohns Colitis. 2022 Jul 14;jjac084.

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REFERENCES

- [1]. Fu ZG, et al. A novel small-molecule compound targeting CD147 inhibits the motility and invasion of hepatocellular carcinoma cells. *Oncotarget*. 2016 Feb 23;7(8):9429-47.
- [2]. Spinello I, et al. The small-molecule compound AC-73 targeting CD147 inhibits leukemic cell proliferation, induces autophagy and increases the chemotherapeutic sensitivity of acute myeloid leukemia cells. *Haematologica*. 2019 May;104(5):973-985.
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Caution: Product has not been fully validated for medical applications. For research use only.

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