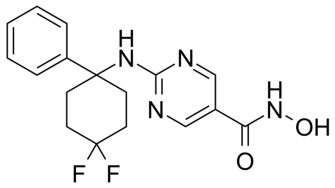
ACY-1083

Cat. No.:	HY-111791
CAS No.:	1708113-43-2
Molecular Formula:	$C_{17}H_{18}F_2N_4O_2$
Molecular Weight:	348.35
Target:	HDAC
Pathway:	Cell Cycle/DNA Damage; Epigenetics
Storage:	-20°C, stored under nitrogen * In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 200 mg/mL (574.14 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.8707 mL	14.3534 mL	28.7068 mL
5 mM	0.5741 mL	2.8707 mL	5.7414 mL
10 mM	0.2871 mL	1.4353 mL	2.8707 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: ≥ 5 mg/mL (14.35 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 5 mg/mL (14.35 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 5 mg/mL (14.35 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

ACY-1083 is a selective and brain-penetrating HDAC6 inhibitor with an IC_{50} of 3 nM and is 260-fold more selective for HDAC6 than all other classes of HDAC isoforms. ACY-1083 effectively reverses chemotherapy-induced peripheral neuropathy[1].

IC_{50} & Target

HDAC6
3 nM (IC_{50})

In Vitro

Treatment with ACY-1083 (30 and 300 nM) significantly improves cell viability in a dose-dependent manner[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[2]

Cell Line:	Mouse hippocampal (HT22) cells
Concentration:	30 and 300 nM
Incubation Time:	
Result:	Significant improvement in cell viability.

In Vivo

ACY-1083 (i.p.; 10 mg/kg; for 7 days) effectively relieves Cisplatin-induced mechanical allodynia in C57BL/6J mice
ACY-1083 (oral doses of 3 mg/kg ACY-1083 for 7 days) reverses Paclitaxel-induced mechanical allodynia in adult male SD rats.
Mice dosed with 5 mg/kg ACY-1083 by intraperitoneal (i.p.) injection have a maximum plasma concentration (C_{max}) of 936 ng/mL, a half-life ($T_{1/2}$) of 3.5 hours, and a biologically active plasma exposure of 8 hours after dosing.
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Adult male C57BL/6J mice of 8-10 weeks of age[1]
Dosage:	3 or 10 mg/kg
Administration:	Administered i.p. injection; daily; for 7 days
Result:	The 10 mg/kg relieved Cisplatin (2.3 mg/kg)-induced mechanical allodynia, whereas the 3 mg/kg dose did not.

Animal Model:	Adult male Sprague Dawley rats[1]
Dosage:	3 mg/kg
Administration:	Two daily doses were given orally for 7 days.
Result:	Reversed Paclitaxel (6 mg/kg or 12 mg/kg)-induced mechanical allodynia.

REFERENCES

[1]. Krukowski K, et al. HDAC6 inhibition effectively reverses chemotherapy-induced peripheral neuropathy. Pain. 2017 Jun;158(6):1126-1137.

[2]. Vahagn C Nikolian, et al. Isoform 6-selective histone deacetylase inhibition reduces lesion size and brain swelling following traumatic brain injury and hemorrhagic shock. J Trauma Acute Care Surg. 2019 Feb;86(2):232-239.

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

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