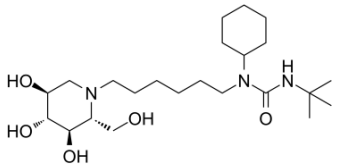
IHVR-19029

Cat. No.:	HY-124662
CAS No.:	1447464-73-4
Molecular Formula:	$C_{23}H_{45}N_3O_5$
Molecular Weight:	443.62
Target:	Glucosidase
Pathway:	Metabolic Enzyme/Protease
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 (225.42 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.2542 mL	11.2709 mL	22.5418 mL
	5 mM	0.4508 mL	2.2542 mL	4.5084 mL
	10 mM	0.2254 mL	1.1271 mL	2.2542 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 (5.64 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.64 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.64 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

IHVR-19029 is a potent endoplasmic reticulum (ER) α-glucosidases I and II inhibitor, with an IC_{50} of 0.48 μM for ER a-glucosidase I. IHVR-19029 efficiently blocks the replication of several hemorrhagic fever viruses, such as Dengue virus (DENV), Ebola virus (EBOV) and Rift Valley fever virus. The combination of IHVR-19029 with Favipiravir (HY-14768) improves the antiviral efficacy[1][2][3][4].

In Vitro

IHVR-19029 efficiently inhibits Bovine viral diarrhea virus (BVDV), Tacaribe virus (TCRV) and Dengue virus (DENV) with EC_{50}s of 0.25, 0.74, and 1.25 μM, respectively[2].The combination of IHVR-19029 and Favipiravir (HY-14768) synergistically inhibits

	the replication of Yellow fever and Ebola viruses in cultured cells[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	IHVR-19029 (25-75 mg/kg; I.p.; twice daily for 10 days) inhibits EBOV and MARV infection in mice[2]. IHVR-19029 (5 mg/kg; i.v.) has AUC, C_0, $T_{1/2}$, CL and V_d values of 1383 μg*h/mL, 1.79 μg/mL, 1.2 hours, 3.49 L/h/kg, and 3.0 L/kg, respectively[2]. IHVR-19029 (75/5/5 mg/kg; p.o./i.m./i.p.) has AUC values of 945/1839/983 μg*h/mL, C_{max} values of 0.26/1.23/1.33 μg/ml, T_{max} values of 2.1/0.1/0.17 hours, and F values of 4.6/71/133%, respectively[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	BALB/c mice (12 week 233 of age) (MARV infection)[2]
Dosage:	25, 75 mg/kg
Administration:	I.p.; twice daily, until 10 days
Result:	Significant protection of Marburg virus (MARV) induced death were observed.

Animal Model:	C57B1/6 mice (8–12 week of age) (EBOV infection)[2]
Dosage:	25, 75 mg/kg
Administration:	I.p.; twice daily for 10 days
Result:	Significant survival were observed.

REFERENCES

[1]. Bray M, et al. Meeting report: 31st International Conference on Antiviral Research. Antiviral Res. 2018 Oct;158:88-102.

[2]. Chang J, et al. Small molecule inhibitors of ER α-glucosidases are active against multiple hemorrhagic fever viruses. Antiviral Res. 2013;98(3):432-440.

[3]. Ester Prodrugs of IHVR-19029 with Enhanced Oral Exposure and Prevention of Gastrointestinal Glucosidase Interaction.ACS Med Chem Lett. 2017 Jan 17;8(2):157-162.

[4]. Ma J, et al. Enhancing the antiviral potency of ER α-glucosidase inhibitor IHVR-19029 against hemorrhagic fever viruses in vitro and in vivo. Antiviral Res. 2018 Feb;150:112-122.

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