NIM811

Cat. No.: HY-P0025

CAS No.: 143205-42-9

Molecular Formula: $C_{62}H_{111}N_{11}O_{12}$

Molecular Weight: 1202.61

Target: HCV; Mitochondrial Metabolism

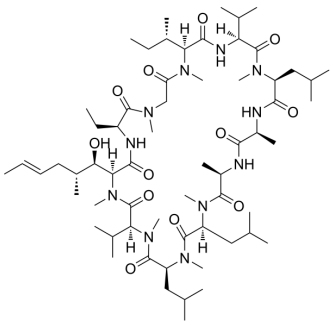
Pathway: Anti-infection; Metabolic Enzyme/Protease

Storage: Sealed storage, away from moisture

Powder -80°C 2 years

-20°C 1 year

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 170 mg/mL (141.36 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	0.8315 mL	4.1576 mL	8.3152 mL
	5 mM	0.1663 mL	0.8315 mL	1.6630 mL
	10 mM	0.0832 mL	0.4158 mL	0.8315 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 (4.16 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 5 mg/mL (4.16 mM); Clear solution
3. Add each solvent one by one: 5% DMSO >> 40% PEG300 >> 5% Tween-80 >> 50% saline
   Solubility: 2.5 mg/mL (2.08 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

NIM811 ((Melle-4)cyclosporin; SDZ NIM811) is an orally bioavailable mitochondrial permeability transition and cyclophilin dual inhibitor, which exhibits potent in vitro activity against hepatitis C virus (HCV) [1][2].

IC_{50} & Target

Cyclophilin[1], Mitochondrial Permeability Transition Inhibitor[2]

In Vitro

NIM811 induces a concentration-dependent reduction of HCV RNA in the replicon cells with an IC_{50} of 0.66 μM at 48 h. In addition, the combination of NIM811 with a-IFN significantly enhances anti-HCV activities without causing any increase of

	cytotoxicity[1]. NIM811 blocks the mitochondrial permeability transition induced by calcium and inorganic phosphate[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	NIM811 prevents mitochondrial depolarization thereby attenuates liver injury, stimulates regeneration and improves liver function and survival[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	The antiviral activity and cytotoxicity of compounds are determined using an HCV replicon cell line (Huh-Luc/neo-ET) containing a luciferase reporter gene. Briefly, 5,000 replicon cells are seeded in each well of 96-well tissue culture plates and are allowed to attach in complete culture medium without G418 overnight. On the next day, the culture medium is replaced with medium containing serially diluted NIM811 in the presence of 10% FBS and 0.5% DMSO. After a 48-h NIM811 treatment, the remaining luciferase activities in the cells are determined[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [3]	Mice: Male C57BL/6 mice (8-12 weeks) are gavaged with NIM811, 10 mg/kg or an equal volume of vehicle containing 8.3% polyethoxylated castor oil and 8.3% ethanol at 2 h before surgery. Mice undergo massive hepatectomy or sham-operation under ether anesthesia. NIM811 (5 mg/kg) or vehicle is gavaged daily post-operatively for 2 days. Mice are observed for 21 days for survival[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell Death Differ. 2022 Jun 20.
- Cell Rep. 2021 Apr 6;35(1):108959.
- iScience. 2022: 105626.
- J Physiol. 2019 Dec;597(24):5879-5898.
- Sci Rep. 2021 Mar 17;11(1):6152.

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REFERENCES

[1]. Ma S, et al. NIM811, a cyclophilin inhibitor, exhibits potent in vitro activity against hepatitis C virus alone or in combination with alpha IFN. Antimicrob Agents Chemother. 2006 Sep;50(9):2976-82.

[2]. Waldmeier PC, et al. Inhibition of the mitochondrial permeability transition by the nonimmunosuppressive cyclosporin derivative NIM811. Mol Pharmacol. 2002 Jul;62(1):22-9.

[3]. Rehman H, et al. NIM811 prevents mitochondrial dysfunction, attenuates liver injury, and stimulates liverregeneration after massive hepatectomy. Transplantation. 2011 Feb 27;91(4):406-12.

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

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