Nicaraven

Cat. No.: HY-100592

CAS No.: 79455-30-4

Molecular Formula: $C_{15}H_{16}N_4O_2$

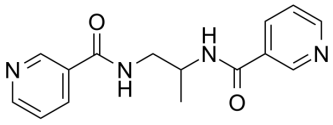
Molecular Weight: 284.31

Target: Others

Pathway: Others

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 : ≥ 100 mg/mL (351.73 mM)

H_2O : ≥ 50 mg/mL (175.86 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.5173 mL	17.5864 mL	35.1729 mL
5 mM	0.7035 mL	3.5173 mL	7.0346 mL
10 mM	0.3517 mL	1.7586 mL	3.5173 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 33.33 mg/mL (117.23 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.75 mg/mL (9.67 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.75 mg/mL (9.67 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.75 mg/mL (9.67 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Nicaraven is a novel chemically synthesized hydroxyl radical-specific scavenger.

In Vitro

The maximum aggregation rate induced by adenosine diphosphate (ADP) is significantly inhibited by nicaraven at

	concentration ranges of 350 μM or higher in the healthy volunteer platelets. The maximum aggregation rate induced by collagen is significantly inhibited by 1.75 mM of nicaraven[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Nicaraven inhibits lipid peroxidation in the liver, improves hepatic and systemic hemodynamics and energy metabolism, and suppresses liver enzyme release, endothelin-1 elevation in hepatic venous blood, histologic damage, and neutrophil infiltration into the liver[1]. Nicaraven increases the number of c-kit(+) stem/progenitor cells in bone marrow and peripheral blood, with a recovery rate around 60-90% of age-matched non-irradiated healthy mice. The potency of colony forming from hematopoietic stem/progenitor cells as indicator of function is completely protected with nicaraven treatment[2]. Administration of nicaraven significantly increases the number, improves the colony-forming capacity, and decreases the DNA damage of hematopoietic stem/progenitor cells. The urinary levels of 8-oxo-2'-deoxyguanosine, a marker of DNA oxidation, are significantly lower in mice that are given nicaraven compared with those that receive a placebo. The administration of nicaraven significantly decreases the levels of the inflammatory cytokines IL-6 and TNF-α in the plasma of mice[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [3]	Mice: To investigate the protective effect and related mechanisms of nicaraven on radiation-induced injury in hematopoietic stem/progenitor cells, 12 mice are exposed to 1 Gy γ-rays daily for 5 days in succession (a total of 5 Gy) and are then given intraperitoneal injections of nicaraven (100 mg/kg/day, Nicaraven group; n=6) or saline only (Placebo group; n=6), respectively, soon after each exposure. The mice are sacrificed 2 days after the last exposure, and samples of urine, blood, and bone marrow cells are collected and used for the following experiments[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Small. 2023 Jan 10;e2206415.

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REFERENCES

[1]. Komiya T, et al. A novel free radical scavenger, nicaraven, inhibits human platelet aggregation in vitro. Clin Neuropharmacol. 1999 Jan-Feb;22(1):11-4.

[2]. Yokota R, et al. A novel hydroxyl radical scavenger, nicaraven, protects the liver from warm ischemia and reperfusion injury. Surgery. 2000 Jun;127(6):661-9.

[3]. Ali H, et al. The potential benefits of nicaraven to protect against radiation-induced injury in hematopoietic stem/progenitor cells with relative low dose exposures.

[4]. Nicaraven attenuates radiation-induced injury in hematopoietic stem/progenitor cells in mice. PLoS One. 2013;8(3):e60023.

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