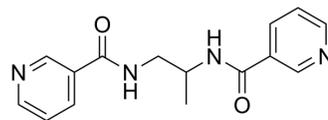


## Nicaraven

<b>Cat. No.:</b>	HY-100592		
<b>CAS No.:</b>	79455-30-4		
<b>Molecular Formula:</b>	C <sub>15</sub> H <sub>16</sub> N <sub>4</sub> O <sub>2</sub>		
<b>Molecular Weight:</b>	284.31		
<b>Target:</b>	Reactive Oxygen Species (ROS)		
<b>Pathway:</b>	Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB		
<b>Storage:</b>	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<sub>2</sub>O : ≥ 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

- Add each solvent one by one: PBS  
Solubility: 33.33 mg/mL (117.23 mM); Clear solution; Need ultrasonic
- 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
- 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
- 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  $\mu$ M or higher in the healthy volunteer platelets. The maximum aggregation rate induced by collagen is significantly inhibited by 1.75 mM of nicaraven<sup>[1]</sup>.

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<sup>[1]</sup>. 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<sup>[2]</sup>.

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- $\alpha$  in the plasma of mice<sup>[3]</sup>.

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## PROTOCOL

#### Animal Administration <sup>[3]</sup>

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  $\gamma$ -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<sup>[3]</sup>.

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

## CUSTOMER VALIDATION

- Small. 2023 Jan 10;e2206415.
- Toxicol Appl Pharmacol. 2024 Apr 28;486:116945.

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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.

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

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