Ranolazine

Cat. No.: HY-B0280

CAS No.: 95635-55-5

Molecular Formula: $C_{24}H_{33}N_3O_4$

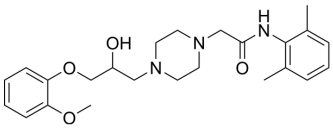
Molecular Weight: 427.54

Target: Sodium Channel; Calcium Channel

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling

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 (233.90 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.3390 mL	11.6948 mL	23.3896 mL
	5 mM	0.4678 mL	2.3390 mL	4.6779 mL
	10 mM	0.2339 mL	1.1695 mL	2.3390 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: ≥ 2.08 mg/mL (4.87 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.87 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (4.87 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Ranolazine (CVT 303) is an anti-angina drug that achieves its effects by inhibiting the late phase of inward sodium current (I_{Na} and I_{Kr} with IC_{50} values of 6 μM and 12 μM, respectively) without affecting heart rate or blood pressure (BP)[1][2]. Ranolazine is also a partial fatty acid oxidation (FAO) inhibitor[3]. Antianginal agent.

IC_{50} & Target

IC50: 6 μM (I_{Na}), 12 μM (I_{Kr})[1]

In Vivo

Ranolazine (Bolus injection 10 mg/kg and infusion 9.6 mg/kg/h; bolus injection; for 145 minutes; male Wistar rats) treatment

significantly reduces infarct size and cardiac troponin T release in rats subjected to left anterior descending coronary artery occlusion-reperfusion[3].

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

Animal Model:	Male Wistar rats (240-350 g)[3]
Dosage:	Bolus injection 10 mg/kg and infusion (9.6 mg/kg/h)
Administration:	Bolus injection; for 145 minutes
Result:	Significantly reduced infarct size and cardiac troponin T release in rats subjected to left anterior descending coronary artery occlusion-reperfusion.

CUSTOMER VALIDATION

- Theranostics. 2018 Oct 29;8(19):5452-5468.
- J Invest Dermatol. 2022 Sep 1;S0022-202X(22)01890-5.
- Philos Trans R Soc Lond B Biol Sci. 2023 Jun 19;378(1879):20220163.

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REFERENCES

[1]. Keating GM. Ranolazine: a review of its use as add-on therapy in patients with chronic stable angina pectoris. Drugs. 2013 Jan;73(1):55-73.

[2]. Wang WQ, et al. Antitorsadogenic effects of ({+/-})-N-(2,6-dimethyl-phenyl)-(4[2-hydroxy-3-(2-methoxyphenoxy)propyl]-1-piperazine (ranolazine) in anesthetized rabbits. J Pharmacol Exp Ther. 2008 Jun;325(3):875-81.

[3]. Zacharowski K, et al. Ranolazine, a partial fatty acid oxidation inhibitor, reduces myocardial infarct size and cardiac troponin T release in the rat. Eur J Pharmacol. 2001 Apr 20;418(1-2):105-10.

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