Catharanthine

Cat. No.: HY-N0252

CAS No.: 2468-21-5

Molecular Formula: $C_{21}H_{24}N_2O_2$

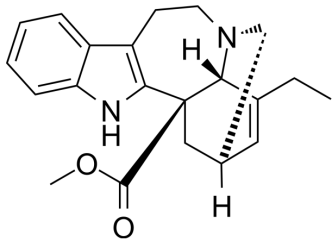
Molecular Weight: 336.43

Target: 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 (297.24 mM)

H_2O : < 0.1 mg/mL (insoluble)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.9724 mL	14.8619 mL	29.7239 mL
5 mM	0.5945 mL	2.9724 mL	5.9448 mL
10 mM	0.2972 mL	1.4862 mL	2.9724 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: ≥ 3.5 mg/mL (10.40 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 3.5 mg/mL (10.40 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Catharanthine ((+)-3,4-Didehydrocoronaridine), a constituent of anticancer vinca alkaloids, inhibits voltage-operated L-type Ca^{2+} channel (VOCC). Catharanthine has IC_{50}s of 220 μM and 8 μM for VOCC currents in cardiomyocytes and vascular smooth muscle cells (VSMCs), respectively. Catharanthine lowers blood pressure (BP), heart rate (HR). Catharanthine has anti-cancer activity[1][2].

IC_{50} & Target

L-type calcium channel

In Vivo

Catharanthine ((+)-3,4-Didehydrocoronaridine; 0.5-20 mg/kg; IV; single dose) evokes dose-dependent reductions in both BP

and HR[1].

Catharanthine (40 mg/kg; ip; single dose) with acute administration induces similar antidepressant-like activity in male and female mice at 1 h and 24 h[1].

Catharanthine (20 mg/kg; ip; for 14 consecutive days) increases swimming time and decreases immobility time at D7 or D14 in mice[1].

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

Animal Model:	13-week-old male SpragueDawley rats (300-350 g)[1]
Dosage:	0.5-20 mg/kg
Administration:	IV; single dose
Result:	Evoked rapid, transient reductions in BP and HR (lasting ,2 minutes) at low doses (0.5–5 mg/kg), whereas at higher doses (10 and 20 mg/kg), the BP and HR reductions were sustained.

REFERENCES

[1]. Hugo R Arias, et al. (+)-Catharanthine and (-)-18-methoxycoronaridine induce antidepressant-like activity in mice by differently recruiting serotonergic and norepinephrinergic neurotransmission. Eur J Pharmacol. 2023 Jan 15:939:175454.

[2]. Jadhav A, et al. Catharanthine dilates small mesenteric arteries and decreases heart rate and cardiac contractility by inhibition of voltage-operated calcium channels on vascular smooth muscle cells and cardiomyocytes. J Pharmacol Exp Ther. 2013 Jun;345(3):383-92.

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