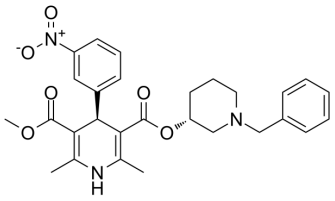
Benidipine

Cat. No.:	HY-B1448A
CAS No.:	105979-17-7
Molecular Formula:	$C_{28}H_{31}N_3O_6$
Molecular Weight:	505.56
Target:	Apoptosis; Calcium Channel
Pathway:	Apoptosis; Membrane Transporter/Ion Channel; Neuronal Signaling
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Benidipine is a potent and orally active calcium channel antagonist[1]. Benidipine shows anti-apoptosis effects in ischaemic/reperfused myocardial cells[2]. Benidipine increases the activity of endothelial cell-type nitric oxide synthase and improves coronary circulation in hypertensive rats[3].

In Vivo

Benidipine (3, 5, 10 μg/kg; i.v.) shows significant anti-apoptosis effects in a haemodynamically independent manner[2].
Benidipine (5 mg/kg; i.v.; every other day for 6 weeks) increases the activity of endothelial cell-type nitric oxide synthase (eNOS) and improves coronary circulation in hypertensive rats[3].
Benidipine (1, 3, 10 mg/kg; p.o.; once daily for 1 week) significant cardioprotective effects against ischemia-reperfusion injury[4].

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

Animal Model:	Sham MI (myocardial ischaemia)/R (ischmia reperfused injury) rabbits and MI/R rabbits[2]
Dosage:	3, 5, 10 μg/kg
Administration:	I.v.
Result:	Caused a significant decreased in HR (heart rate), MABP (mean arterial blood pressure), PRI (pressure-rateindex) at 10 μg/kg, decreased apoptotic positive cells to7.4% at 3 μg/kg and not significantly different from that seen in the group treated with higher dose.

Animal Model:	Renovascular hypertensive rats (RHR)[3]
Dosage:	5 mg/kg (dissolved in peanut oil)
Administration:	I.v.; every other day for 6 weeks
Result:	Significantly decreased the blood pressure and coronary vascular resistance index, but increased nitrite production and eNOS mRNA expression and significantly increased the coronary flow at rest, the capillary density.

Animal Model:	Rats (heart model (Langendorff perfusion))[4]

Dosage:	1, 3, 10 mg/kg
Administration:	P.o.; once daily for 1 week
Result:	Significantly increased the post-ischemic recovery of LVDP and LV dP/dt max (LVDP: 87.5±10.1 vs 64.6±11.9%; LV dP/dt max: 97.8±10.4 vs 70.2±15.7%; p<0.05) at 3 mg/kg.

REFERENCES

[1]. Yao K, et al. Pharmacological, pharmacokinetic, and clinical properties of benidipine hydrochloride, a novel, long-acting calcium channel blocker. J Pharmacol Sci. 2006 Apr;100(4):243-61.

[2]. Gao F, et al. Anti-apoptotic effect of benidipine, a long-lasting vasodilating calcium antagonist, in ischaemic/reperfused myocardial cells. Br J Pharmacol. 2001 Feb;132(4):869-78.

[3]. Kobayashi N, et al. Benidipine stimulates nitric oxide synthase and improves coronary circulation in hypertensive rats. Am J Hypertens. 1999 May;12(5):483-91.

[4]. Masanori S, et al. Orally administered benidipine and manidipine prevent ischemia-reperfusion injury in the rat heart. Circ J. 2004 Mar;68(3):241-6.

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