Amlodipine maleate

Cat. No.: HY-B0317A

CAS No.: 88150-47-4

Molecular Formula: $C_{24}H_{29}ClN_2O_9$

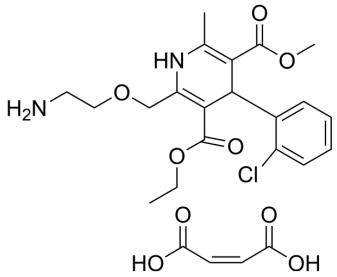
Molecular Weight: 524.95

Target: Calcium Channel

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling

Storage: 4°C, sealed storage, away from moisture

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 120 mg/mL (228.59 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.9049 mL	9.5247 mL	19.0494 mL
	5 mM	0.3810 mL	1.9049 mL	3.8099 mL
	10 mM	0.1905 mL	0.9525 mL	1.9049 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: ≥ 1.71 mg/mL (3.26 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1.71 mg/mL (3.26 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1.71 mg/mL (3.26 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Amlodipine maleate is a dihydropyridine calcium channel blocker, acts as an orally active antianginal agent. Amlodipine maleate blocks the voltage-dependent L-type calcium channels, thereby inhibiting the initial influx of calcium. Amlodipine maleate can be used for the research of high blood pressure and cancer[1][2][3].

IC_{50} & Target

L-type calcium channel

In Vitro

Amlodipine maleate (20-40 μM; 48 h) reduces BrdU incorporation to 68.6% and 26.3% at concentrations of 20 and 30 μM in A431 cells, respectively[3].

Amlodipine maleate (30 μM; pretreated for 1 h) significantly attenuates the uridine 5′-triphosphate (UTP)-induced increases

	of $[Ca^{2+}]_i$ in A431 cells[3]. Amlodipine maleate (30 μM) inhibits the store-operated Ca^{2+}influx evoked by Thapsigargin in Fluo-3-loaded cells[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Amlodipine maleate (5 mg/kg/day; s.c. for 2 weeks) significantly decreases systolic blood pressure (SBP) in VSMC ATP2B1 KO mice[4]. Amlodipine maleate (10 mg/kg; i.p. once daily for 20 days) causes a significant retardation of tumor growth and prolongs the survival of A431 tumor-bearing mice[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	$ATP2B1^{loxP/loxP}$ mice[4]
Dosage:	5 mg/kg/day
Administration:	Subcutaneously implanted osmotic pump for 2 weeks
Result:	Significantly decreased the blood pressure.

CUSTOMER VALIDATION

- Exp Mol Med. 2021 Apr 2.
- Cells. 2022 Oct 8;11(19):3156.
- J Biochem Mol Toxicol. 2022 Oct 7;e23238.
- Biochem Biophys Res Commun. 2020 Feb 19;522(4):862-868.
- J Chem Thermodyn. 2021, 106495.

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REFERENCES

[1]. Yoshida J, et, al. Antitumor effects of amlodipine, a Ca2+ channel blocker, on human epidermoid carcinoma A431 cells in vitro and in vivo. Eur J Pharmacol. 2004 May 25;492(2-3):103-12.

[2]. Okuyama Y, et, al. The effects of anti-hypertensive drugs and the mechanism of hypertension in vascular smooth muscle cell-specific ATP2B1 knockout mice. Hypertens Res. 2018 Feb;41(2):80-87.

[3]. Kishen G. Bulsara, et al. Amlodipine.

[4]. Haria M, et al. Amlodipine. A reappraisal of its pharmacological properties and therapeutic use in cardiovascular disease [published correction appears in Drugs 1995 Nov;50(5):896]. Drugs. 1995;50(3):560-586.

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