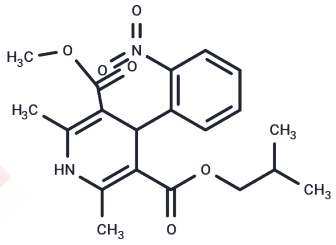
Data Sheet (Cat.No.T0163)

TargetMol

Nisoldipine

Chemical Properties



CAS No. : 63675-72-9

Formula: C20H24N2O6

Molecular Weight: 388.41

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Nisoldipine (BAY-k 5552) is a dihydropyridine calcium channel antagonist that acts as a potent arterial vasodilator and antihypertensive agent.
Targets(IC50)	Calcium Channel,Reactive Oxygen Species,ROS
In vitro	In patients with Timothy syndrome, Nisoldipine (IC50=267 nM) induces vasodilation and lowers blood pressure by inhibiting the influx of calcium ions through L-type calcium channels, thereby decreasing the contractility of arterial smooth muscle and subsequent vasoconstriction.
In vivo	In guinea pig ventricular myocytes, Nisoldipine acts on delayed rectifier K+ channels, inhibiting the rapid-activating component (IKr) with an IC50 of 23 μM, and the slow-activating component (IKs) with an IC50 of 40 μM.
Kinase Assay	Binding experiments of electrophysiology: CHO cells expressing the subunit of the voltage-dependent L-type Ca2+ channel are cultrured in medium without serum in the presence of different concentrations of Nisoldipine. Then Ca2+ channel current elicited from a holding potential of -100 mV or -50 mV is recorded at room temperature with the whole-cell configuration of the patch-clamp method using the List EPC-7 patch-clamp amplifer and pClamp software. The concentration of competitor inhibiting 50% of the specific binding represents IC50.
Cell Research	The myocytes are bathed in normal Tyrode's solution, held at -80 mV, and depolarised after 200-ms prepulses (-40mV) to more positive potentials for 500 ms at 0.1 Hz, tail currents are recorded on repolarisations to -40mV. The myocytes are exposed to 10-100 mM Nisoldipine for 8-10 minutes. Then the whole-cell membrane currents are recorded using an EPC-7 amplifier.(Only for Reference)

Solubility Information

Solubility	Ethanol: 56 mg/mL (144.18 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble), DMSO: 163 mg/mL (419.66 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: < 10 mg/mL (25.75 mM),Lower concentrations may be soluble, but exact solubility limit is unknown.

In vivo Formulation	10% DMSO+90% (20% SBE-β-CD in Saline): 10 mg/mL (25.75 mM),Solution. 10% DMSO+90% Saline: < 10 mg/mL (25.75 mM),Lower concentrations may be soluble, but exact solubility limit is unknown. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.5746 mL	12.873 mL	25.746 mL
5 mM	0.5149 mL	2.5746 mL	5.1492 mL
10 mM	0.2575 mL	1.2873 mL	2.5746 mL
50 mM	0.0515 mL	0.2575 mL	0.5149 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Morel N, et al. Br J Pharmacol, 1998, 125(5), 12005-12012.
Li W H, Huang K, Cai Y, et al. Permeant Fluorescent Probes Visualize the Activation of SARM1 and Uncover an Anti-neurodegenerative Drug Candidate. Elife. 2021, 10: e67381.
Wang B, Pei J, Zhang H, et al.Dihydropyridine-derived calcium channel blocker as a promising anti-hantavirus entry inhibitor.Interventions for emerging infectious diseases.2023, 16648714.
Missan S, et al. Br J Pharmacol, 2003, 140 (5), 863-870.
Sugawara H, et al. Hypertens Res, 1996, 19 (4), 223-228.
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