Nicardipine hydrochloride

Cat. No.: HY-12515A
CAS No.: 54527-84-3
Molecular Formula: C₂₆H₃₀ClN₃O₆
Molecular Weight: 515.99
Target: Calcium Channel; Autophagy
Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling; Autophagy
Storage: 4°C, protect from light
* In solvent: -80°C, 6 months; -20°C, 1 month (protect from light)

**SOLVENT & SOLUBILITY**

In Vitro

DMSO: ≥ 35 mg/mL (67.83 mM)
* “≥” means soluble, but saturation unknown.

Preparing Stock Solutions

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Concentration</th>
<th>Mass 1 mg</th>
<th>Mass 5 mg</th>
<th>Mass 10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>1.9380 mL</td>
<td>9.6901 mL</td>
<td>19.3802 mL</td>
<td></td>
</tr>
<tr>
<td>5 mM</td>
<td>0.3876 mL</td>
<td>1.9380 mL</td>
<td>3.8760 mL</td>
<td></td>
</tr>
<tr>
<td>10 mM</td>
<td>0.1938 mL</td>
<td>0.9690 mL</td>
<td>1.9380 mL</td>
<td></td>
</tr>
</tbody>
</table>

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: ≥ 2.5 mg/mL (4.85 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (4.85 mM); Clear solution

**BIOLOGICAL ACTIVITY**

Description
Nicardipine hydrochloride (YC-93) is a calcium channel blocker with an IC₅₀ of 1 μM for blocking cardiac calcium channels. Nicardipine hydrochloride acts as an agent for chronic stable angina and for controlling blood pressure[1].

IC₅₀ & Target
IC₅₀: 1 μM (cardiac calcium channels)[1]

In Vitro
Nicardipine (0.1-10 μM; 24-48 h) reduces viability and proliferation of vascular smooth muscle cells (VSMCs) and inhibits their ability to migrate[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Cell Viability Assay[2]
**VSMCs** were isolated from New Zealand rabbit aortic preparations. Concentration: 0.1 μM, 1 μM, 3 μM, 10 μM. Incubation Time: 24-48 hours. Result: Treatment reduced significantly cell viability and inhibited VSMCs proliferation in the presence of 10% FBS in a dose-dependent way, from 205.4±17.5% to 176.6±17%, 160.6±5.7%, 150.4±11.2%, 61.2±7.83% after 0.1 μM, 1 μM, 3 μM, 10 μM treatment, respectively.

**Western Blot Analysis**


**In Vivo**

Nicardipine (0.3-10 mg/kg; p.o.) shows antihypertensive properties\(^3\). LD\(_{50}\)s of Nicardipine are 643 mg/kg (oral) and 557 mg/kg (oral); 18.1 mg/kg (intravenous) 25.0 mg/kg (intravenous); 735 mg/kg (subcutaneous) and 683 mg/kg (subcutaneous); 171 mg/kg (intraperitoneally) and 155 mg/kg (intraperitoneally) for male and female Sprague-Dawley rats, respectively\(^3\). LD\(_{50}\)s of Nicardipine are 187 mg/kg (oral) and 15.5 mg/kg (intravenous) for male Wistar rats, respectively\(^3\). LD\(_{50}\)s of Nicardipine are 634 mg/kg (oral) and 650 mg/kg (oral); 20.7 mg/kg (intravenous) 19.9 mg/kg (intravenous); 540 mg/kg (subcutaneous) and 710 mg/kg (subcutaneous); 144 mg/kg (intraperitoneally) and 161 mg/kg (intraperitoneally) for male and female mice, respectively\(^3\).

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

Animal Model: In conscious normotensive rats (NR)\(^3\). Dosage: 0.3-10 mg/kg. Administration: P.o. Result: Induced a dose-dependent hypotensive response (maximal decrease in mean blood pressure, supine position) without any postural hypotensive response.

### REFERENCES


Caution: Product has not been fully validated for medical applications. For research use only.
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