**Manidipine 2HCl (CV-4093) Datasheet**

### Technical Data

<table>
<thead>
<tr>
<th>Molecular Weight (MW)</th>
<th>683.62</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formula</td>
<td>C_{35}H_{38}N_{4}O_{6}.2HCl</td>
</tr>
<tr>
<td>CAS No.</td>
<td>89226-75-5</td>
</tr>
<tr>
<td>Synonyms</td>
<td>N/A</td>
</tr>
<tr>
<td>Solubility (25°C)</td>
<td></td>
</tr>
<tr>
<td>DMSO</td>
<td>21 mg/mL</td>
</tr>
<tr>
<td>Water</td>
<td>&lt;1 mg/mL</td>
</tr>
<tr>
<td>Ethanol</td>
<td>&lt;1 mg/mL</td>
</tr>
<tr>
<td>Storage</td>
<td>2 years -20°C</td>
</tr>
<tr>
<td>Powder</td>
<td>4°C in DMSO</td>
</tr>
<tr>
<td>2 weeks</td>
<td>4°C in DMSO</td>
</tr>
<tr>
<td>6 months</td>
<td>-80°C in DMSO</td>
</tr>
</tbody>
</table>

### Biological Activity

**Description**
Manidipine HCl is a HCl salt form of Manidipine which is a calcium channel blocker for Ca^{2+} current with IC50 of 2.6 nM.

**Targets**
Ca^{2+} current

**IC50**
2.6 nM[1]

**In vitro**
At a holding potential of ~37 mV, Manidipine decreases the Ca^{2+} current at concentrations above 0.1 nM and abolishes it at 100 nM.[1] Manidipine concentration-dependently inhibits the calcium concentration response curves. Manidipine inhibits coronary artery and renal artery with pIC50 of 9.3 nM and 9.1 nM, respectively.[2] Manidipine partly inhibits sympathetic nerve activity and suppresses the mean arterial pressure response to infused norepinephrine. Manidipine also inhibits aldosterone secretion. Manidipine increases in both urinary calcium and uric acid.[3] In addition, Manidipine, at nanomolar concentrations, is efficacious in modulating gene transcriptions that are involved in proinflammatory changes of mesangial cells.[4]

**In vivo**
Manidipine (3 mg/kg and 10 mg/kg, p.o.) dose-dependently decreases systolic blood pressure in the three types of hypertensive rats. At the dose of 10 mg/kg, Manidipine decreases the blood pressure to the normotensive level between 1 hour and 3 hours after Manidipine is administered; the antihypertensive effect lasted for at least 8 hours.[5] When Manidipine is administered at 10 μg/kg, the hypotensive action is markedly augmented.[6] Manidipine potently inhibits the Ca inward current, when the potential is at -60 mV. Manidipine consistently inhibits the Ca current evoked by depolarization to 0 mV. However, a low concentration of Manidipine (1-3 nM) enhances the Ca current evoked by the depolarizing pulse of -0 V, when the membrane potential is held at -80 mV. Inhibition of the Ca current induced by Manidipine develops slowly and over 10 minutes is required to reach the maximum inhibition.[7]

**Clinical Trials**

**Features**

### Protocol (Only for Reference)

**Cell Assay:**[4]

- **Cell Lines:** Mesangial cells
- **Concentrations:** 10 nM
- **Incubation Time:** Days 1, 3 and 5
- **Methods:** The mitogenic effect is measured by the amount of [3H]thymidine incorporated into DNA of human MCs and by assessment of cell proliferation. In brief, 1 x 105 quiescent cells is seeded into a 25-mL cell culture bottle and incubated with low serum medium (0.1% FCS). On the following day, the cells are preincubated for 3 hours with Manidipine (10 nM) followed by stimulation with PDGF-BB (10 ng/mL) or incubated with low serum medium alone. The medium is replaced each day, and the cells are counted at days 1, 3 and 5.

**Animal Study:**[5]

- **Animal Models:** Normotensive male Wistar-Kyoto rats and male stroke-prone SHR
- **Formulation:** Saline
- **Doses:** 1 mg/kg, 3 mg/kg and 10 mg/kg
- **Administration:** Administered via p.o.

### Reference

Specific storage and handling information for each product is indicated on the product datasheet. Most Selleck products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality, but save your shipping charges by using the most economical storage conditions for an overnight shipment. Upon receipt of the product, follow the storage recommendations on the product datasheet.


Please keep the product under -20°C for long-term storage.

Not for human, veterinary diagnostic or therapeutic use.