Cinaciguat

Cat. No.: HY-14181
CAS No.: 329773-35-5
Molecular Formula: C₃₆H₃₉NO₅
Molecular Weight: 565.7
Target: Guanylate Cyclase
Pathway: GPCR/G Protein
Storage:
- Powder: -20°C 3 years, 4°C 2 years
- In solvent: -80°C 6 months, -20°C 1 month

SOLVENT & SOLUBILITY

In Vitro
DMSO: ≥ 50 mg/mL (88.39 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

<table>
<thead>
<tr>
<th>Solvent 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>1.7677 mL</td>
<td>8.8386 mL</td>
<td>17.6772 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.3535 mL</td>
<td>1.7677 mL</td>
<td>3.5354 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.1768 mL</td>
<td>0.8839 mL</td>
<td>1.7677 mL</td>
</tr>
</tbody>
</table>

In Vivo
1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (4.42 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (4.42 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
Cinaciguat is an activator of guanylate cyclase (sGC), and used for acute decompensated heart failure.

In Vitro
Cinaciguat (10 μM) significantly enhances intracellular cGMP generation. Cinaciguat does not dose-dependent effects on cell contraction and calcium transients.[2]

In Vivo
Cinaciguat (10 mg/kg/day, p.o.) treatment in diabetic rats does not influence blood glucose levels, but leads to attenuated water intake. Cinaciguat treatment alleviates diabetes mellitus related oxidative stress, protects against DM related alteration of the NO-sGC-cGMP-PKG signalling, and alleviates DM related myocardium hypertrophy and
Cinaciguat (1-10-100 nM) induces concentration-dependent relaxations in strips from both WT and apo-sGC mice, but does not have any effect on phasic activity induced by PGF$_2\alpha$ in WT or apo-sGC strips$^3$.

**PROTOCOL**

**Animal Administration**$^1$

After confirmation of DM, rats are randomised into four groups: vehicle-treated control, cinaciguat-treated control, vehicle-treated diabetic and cinaciguat-treated diabetic groups. Animals are treated for 8 weeks with 0.5% methylcellulose vehicle or with the sGC activator cinaciguat in suspension p.o. (10 mg/kg/day), starting immediately after DM confirmation. Water bottles are filled every morning with the same amount of fresh tap water and daily water intake is measured. Animal cages are handled with care and are not moved after water bottle replacement to prevent spilling of water from the bottles. Body weight of the animals are recorded every 2 days and the dose of cinaciguat is adjusted accordingly.

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

**REFERENCES**


[2]. Reinke Y, et al. The soluble guanylate cyclase stimulator riociguat and the soluble guanylate cyclase activator cinaciguat exert no direct effects on contractility and relaxation of cardiac myocytes from normal rats. Format: AbstractSend to Eur J Pharmacol


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