CDN1163

Cat. No.: HY-101455
CAS No.: 892711-75-0
Molecular Formula: C₂₀H₂₀N₂O₂
Molecular Weight: 320.39
Target: Calcium Channel
Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling
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: 100 mg/mL (312.12 mM; Need ultrasonic)

Preparing Stock Solutions

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Concentration</th>
<th>Mass (mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 mg</td>
<td>5 mg</td>
</tr>
<tr>
<td>1 mM</td>
<td>3.1212 mL</td>
<td>15.6060 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.6242 mL</td>
<td>3.1212 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.3121 mL</td>
<td>1.5606 mL</td>
</tr>
</tbody>
</table>

In Vivo
1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (7.80 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (7.80 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.80 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
CDN1163 is an allosteric sarco/endoplasmic reticulum Ca²⁺-ATPase (SERCA) activator that improves Ca²⁺ homeostasis. CDN1163 attenuates diabetes and metabolic disorders[1].

IC₅₀ & Target
SERCA[1]

In Vitro
CDN1163 (10 μM; 24 hours; rat cardiac myocyte cells) treatment reduces high glucose-induced resistin and nuclear NFATc expression and increases the phosphorylation of AMPKα in a time-dependent manner[2].
Western Blot Analysis

<table>
<thead>
<tr>
<th>Cell Line:</th>
<th>Rat cardiac myocyte cells (H9c2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration:</td>
<td>10 μM</td>
</tr>
<tr>
<td>Incubation Time:</td>
<td>24 hours</td>
</tr>
<tr>
<td>Result:</td>
<td>High glucose-induced resistin and nuclear NFATc expression are significantly reduced. The phosphorylation of AMPKα is increased in a time-dependent manner.</td>
</tr>
</tbody>
</table>

In Vivo

CDN1163 (50 mg/kg; intraperitoneal injection; for 5 days; male ob/ob mice and lean ob/+ mice) increases SERCA2 Ca²⁺-ATPase activity, decreases endoplasmic reticulum (ER) stress-induced cell death in vitro and improves liver Ca²⁺ transport activity. CDN1163 reduces blood glucose levels and improves metabolic parameters and gluconeogenic gene expression, reverses hepatic steatosis, inhibits ER stress and ER stress-induced apoptosis, and improves mitochondrial efficiency in ob/ob mice in vivo[1].

Animal Model: Male 8-10-week old ob/ob mice and lean ob/+ mice[1]
Dosage: 50 mg/kg
Administration: Intraperitoneal injection; for 5 days
Result: Markedly lowered fasting blood glucose, improved glucose tolerance, and ameliorated hepatosteatosis but did not alter glucose levels or body weight. Increased expression of uncoupling protein 1 (UCP1) and UCP3 in brown adipose tissue and reduced the hepatic expression of genes involved in gluconeogenesis and lipogenesis, attenuated ER stress response and ER stress-induced apoptosis, and improved mitochondrial biogenesis, possibly through SERCA2-mediated activation of AMP-activated protein kinase pathway.

CUSTOMER VALIDATION


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REFERENCES

