Imeglimin

**Cat. No.**  HY-14771
**CAS No.**  775351-65-0
**Molecular Formula**  C₆H₁₃N₅
**Molecular Weight**  155.2
**Target**  Mitochondrial Metabolism
**Pathway**  Metabolic Enzyme/Protease
**Storage**  Please store the product under the recommended conditions in the COA.

---

### Solvent & Solubility

**In Vitro**  10 mM in DMSO

<table>
<thead>
<tr>
<th>Concentration</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>6.4433 mL</td>
<td>32.2165 mL</td>
<td>64.4330 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>1.2887 mL</td>
<td>6.4433 mL</td>
<td>12.8866 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.6443 mL</td>
<td>3.2216 mL</td>
<td>6.4433 mL</td>
</tr>
</tbody>
</table>

Please refer to the solubility information to select the appropriate solvent.

---

### BIOLOGICAL ACTIVITY

**Description**  Imeglimin is the first antidiabetic compound that induces an increase in mitochondrial phospholipid composition, contributing to improvements in hepatic mitochondrial function.

**IC₅₀ & Target**  Mitochondrial phospholipid[1]

#### In Vitro

Imeglimin also reduces reactive oxygen species production and increases mitochondrial DNA. Imeglimin effects on mitochondrial phospholipid composition can participate in the benefit of Imeglimin on mitochondrial function. Imeglimin increases mtDNA content without modifying PGC1α expression. Imeglimin amplifies the effects of high-fat, high-sucrose diet (HFHSD) on both cardiolipin and phosphatidylycerine (PS) content, whereas it tends to restore phosphatidylcholine (PC), phosphatidylethanolamine (PE), and phosphatidylinositol (PI) content to normal values in HFHSD mitochondria[1].

#### In Vivo

Imeglimin is administered orally at 200 mg/kg b.i.d. during the last 6 weeks of the HFHSD feeding protocol. A slight decrease in body weight and food intake associated with some diarrhea is observed but only during the first few days of treatment. Imeglimin significantly decreases hyperglycemia, restores normal glucose tolerance, and improves insulin sensitivity[1].

---

[1] Reference(s) for IC₅₀ and Target information.
**PROTOCOL**

**Kinase Assay**[1]

Rotenone-sensitive NADH-ubiquinone oxidoreductase (complex I, CI) is assayed using 100 μM Decylubiquinone as an electron acceptor and 200 μM NADH as a donor in a 10 mM KH₂PO₄/K₂HPO₄ buffer, pH 7.5, containing 3.75 mg/mL BSA, 2 mM KCN, and 7.5 μM Antimycin A. NADH oxidation is measured at 340 nm before and after the addition of 4 μM Rotenone to allow the calculation of the Rotenone-sensitive-specific activity, which is characteristic of CI. Succinate-ubiquinone reductase (complex II, CII) activity is quantified by measuring the decrease in absorbance resulting from the reduction of 100 μM dichlorophenolindophenol at 600 nm. The measurement is performed in 50 mM KH₂PO₄/K₂HPO₄ buffer, pH 7.5, in the presence of 30 mM Succinate, 100 μM Decylubiquinone, 2 μM Rotenone, and 2 mM KCN. Coenzyme Q-cytochrome c-oxidoreductase activity (complex III, CIII), is quantified by measuring the increase in absorbance resulting from the reduction of 100 μM cytochrome c at 550 nm. The measurement is performed in 50 mM KH₂PO₄/K₂HPO₄ buffer, pH 7.5, in the presence of 100 μM Decylubiquinone previously reduced by dithionite, 50 μM EDTA, and 1 mM KCN. The specific activity is calculated by subtracting the activity obtained before and after addition of 5 μg/mL Antimycin A. 3-Hydroxyacyl-CoA dehydrogenase (HAD) activity is quantified by measuring the decrease in absorbance at 340 nm resulting from the oxidation of NADH (200 μM) and the reduction of S-acetoacetyl-CoA (50 μM). The measurement is performed in Imidazole (40 mM) and EDTA (60 μM), pH 7[1].

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

**Animal Administration**[1]

**Mice[1]**

Male C57BL/6JOLA(Hsd) mice at 4 weeks old are housed at 22°C with a 12-h light/dark cycle. After 1 week of acclimatization, 5-6-week-old mice are divided into two groups: one with free access to a standard chow diet (SD) and the other with free access to a pelleted HFHSD diet for 16 weeks. Animals receive Imeglimin 200 mg/kg b.i.d. by oral gavage during the last 6 weeks of HFHSD feeding. Control SD and HFHSD mice are treated by oral gavage with methylcellulose 0.5% as a vehicle for drug treatment (5 mL/kg). Food intake is measured every day during the first week and twice a week until the end of the experiment. Results are expressed as grams per day per mouse.

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

**REFERENCES**


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

Tel: 609-228-6898       Fax: 609-228-5909       E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA