**Risperidone**

**Cat. No.:** HY-11018  
**CAS No.:** 106266-06-2  
**Molecular Formula:** C₂₃H₂₇FN₄O₂  
**Molecular Weight:** 410.48  
**Target:** 5-HT Receptor; Dopamine Receptor; P-glycoprotein  
**Pathway:** GPCR/G Protein; Neuronal Signaling; Membrane Transporter/Ion Channel  
**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: 10 mg/mL (24.36 mM; Need ultrasonic)

<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>2.4362 mL</td>
<td>12.1809 mL</td>
<td>24.3617 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.4872 mL</td>
<td>2.4362 mL</td>
<td>4.8723 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.2436 mL</td>
<td>1.2181 mL</td>
<td>2.4362 mL</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: ≥ 1 mg/mL (2.44 mM); Clear solution

2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
   Solubility: ≥ 1 mg/mL (2.44 mM); Clear solution

3. Add each solvent one by one: 10% DMSO >> 90% corn oil  
   Solubility: ≥ 1 mg/mL (2.44 mM); Clear solution

---

**BIOLOGICAL ACTIVITY**

**Description**  
Risperidone is a serotonin 5-HT₂ receptor blocker, P-Glycoprotein inhibitor and potent dopamine D₂ receptor antagonist, with \( K_i \)s of 4.8, 5.9 nM for 5-HT₂A and dopamine D₂ receptor, respectively.

**IC₅₀ & Target**  
<table>
<thead>
<tr>
<th>Target</th>
<th>IC₅₀ Value (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-HT₂A Receptor</td>
<td>4.8 (Ki)</td>
</tr>
<tr>
<td>Dopamine D₂</td>
<td>5.9 (Ki)</td>
</tr>
<tr>
<td>P-Glycoprotein</td>
<td></td>
</tr>
</tbody>
</table>
In Vitro

Risperidone is a serotonin 5-HT2 receptor blocker, P-Glycoprotein inhibitor and potent dopamine D2 receptor antagonist, with Ks of 4.8, 5.9 nM for 5-HT2A and dopamine D2 receptor, respectively. Risperidone dose-dependently inhibited the release of IL-12 in mature DCs, while the production of IL-10 is dose-dependently increased by Risperidone. A high dose of risperidone can induce TNF-α release from mature DCs[3].

In Vivo

In the first experiment, body weight is found to be slightly but significantly lower in the Risperidone-treated rats as a function of age. Similar to the first experiment, age-dependent differences in body weight are also observed between the three treatment groups in the second locomotor experiment. Rats treated with the 3.0 mg/kg dose of Risperidone weigh less than vehicle-treated rats on postnatal days 35, 38, and 41. The third locomotor experiment involves larger, mixed-sex litters in contrast to the smaller, single-sex litters used in the first two experiments. As noted for the first two experiments, rats treated with Risperidone in the third experiment gain less weight in an age-dependent manner[4].

PROTOCOL

Animal Administration[4]

Rats[4]

A total of 211 Long-Evans rats (56 females and 155 males) are used. Within each study, three groups of roughly equal numbers of rats receive injections of 1.0 mg/kg of Risperidone, 3.0 mg/kg of Risperidone, or the vehicle used for the Risperidone solution as a control. In the first experiment, twenty-six male rats (n=9 in the vehicle and 3.0 mg/kg Risperidone group; n=8 in the 1.0 mg/kg Risperidone group) are tested for locomotor activity for 20 minutes a day beginning at postnatal day 49 and continuing daily until postnatal day 53. A second experiment determined if the locomotor effects of early-life Risperidone treatment persisted well into adulthood. A third experiment ascertains the effects of sex on the locomotor effects of early-life Risperidone seen in young adult rats. In this experiment, sixty male (n=20 per treatment group) and 56 female (n=19 rats in the vehicle and 3.0 mg/kg dose group, n=18 in the 1.0 mg/kg dose group) rats are treated. A fourth experiment assessed reversal learning during adulthood in rats administered earlylife risperidone. Forty-two male rats (n=14 per treatment group) are treated[4].

REFERENCES


