AZD9056 hydrochloride

**Cat. No.:** HY-19427A  
**CAS No.:** 345303-91-5  
**Molecular Formula:** C₂₄H₃₆Cl₂N₂O₂  
**Molecular Weight:** 455.46  
**Target:** P2X Receptor  
**Pathway:** 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

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Mass (1 mg)</th>
<th>Mass (5 mg)</th>
<th>Mass (10 mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMSO</td>
<td>2.1956 mL</td>
<td>10.9779 mL</td>
<td>21.9558 mL</td>
</tr>
<tr>
<td>1 mM</td>
<td>2.1956 mL</td>
<td>10.9779 mL</td>
<td>21.9558 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.4391 mL</td>
<td>2.1956 mL</td>
<td>4.3912 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.2196 mL</td>
<td>1.0978 mL</td>
<td>2.1956 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: ≥ 2.5 mg/mL (5.49 mM); Clear solution

2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
   Solubility: ≥ 2.5 mg/mL (5.49 mM); Clear solution

3. Add each solvent one by one: 10% DMSO >> 90% corn oil  
   Solubility: ≥ 2.5 mg/mL (5.49 mM); Clear solution

### BIOLOGICAL ACTIVITY

**Description**  
AZD9056 hydrochloride is a selective orally active inhibitor of P2X7 which plays a significant role in inflammation and pain-causing diseases.

**In Vitro**  
The antagonist AZD9056 blocks P2X7 receptors with an IC₅₀ of 11.2 nM in HEK-hP2X7 cell line, indicating a high selectivity of the antagonist for the P2X7 receptor. The P2X7-receptor antagonist AZD9056 has a clear inhibitory effect (IC₅₀=1-3 μM) in mouse microglia BV2 cells[1]. AZD9056 is an inhibitor of BCRP and weakly inhibits BCRP-mediated transport of methotrexate (IC₅₀=92 μM)[2].
In Vivo
Treatment with AZD9056 exerts pain-relieving and anti-inflammatory effects. The upregulated expression of interleukin (IL)-1β, IL-6, tumor necrosis factor-α (TNF-α), matrix metalloproteinase-13 (MMP-13), substance P (SP) and prostaglandin E2 (PGE2) which is induced by MIA in cartilage tissues is reversed by AZD9056\textsuperscript{[3]}.

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

PROTOCOL

Cell Assay\textsuperscript{[1]}
AZD9056 is used as a stock solution in DMSO. Final DMSO concentrations in experiments does not exceed 1.0% (v/v). The effect of agonists on cell viability is assessed in parental HEK293 cells and HEK–hP2X7 cells using the CellTiter-Blue assay. For inhibition experiments, AZD9056 is added to the cells at concentrations up to 10 μmol/L 5 min prior to the addition of ATP (2.5 mM) or BzATP (0.25 mM). After incubation for 30 min at 37°C, an aliquot (20 μL) of the prewarmed CellTiter-Blue reagent is added. Samples are incubated for 1 h at 37°C. Fluorescence signals are measured\textsuperscript{[1]}.

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Animal Administration\textsuperscript{[3]}
Rats: To reveal the molecular mechanisms of action of P2X7R in articular cartilage in OA-induced pain and inflammation, the antagonist of P2X7R AZD9056 is used. Wistar rats are administered (by intra-articular injection) monosodium iodoacetate (MIA), and the rats with OA are then treated with the P2X7R antagonist, AZD9056\textsuperscript{[3]}.

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

REFERENCES

