Arbidol hydrochloride

Cat. No.: HY-14904A
CAS No.: 131707-23-8
Molecular Formula: C₂₂H₂₆BrClN₂O₃S
Molecular Weight: 513.88
Target: Influenza Virus
Pathway: Anti-infection
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: 25 mg/mL (48.65 mM; Need ultrasonic)

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<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>1.9460 mL</td>
<td>9.7299 mL</td>
<td>19.4598 mL</td>
<td></td>
</tr>
<tr>
<td>5 mM</td>
<td>0.3892 mL</td>
<td>1.9460 mL</td>
<td>3.8920 mL</td>
<td></td>
</tr>
<tr>
<td>10 mM</td>
<td>0.1946 mL</td>
<td>0.9730 mL</td>
<td>1.9460 mL</td>
<td></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 (4.86 mM); Clear solution

2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (4.86 mM); Clear solution

3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (4.86 mM); Clear solution

**BIOLOGICAL ACTIVITY**

Arbidol hydrochloride (Umifenovir hydrochloride) is an broad-spectrum antiviral chemical agent which can inhibit cell entry of enveloped viruses by blocking viral fusion with host cell membraneIC₅₀ value:

**Description**
Arbidol was found to present potent inhibitory activity against enveloped and non-enveloped RNA viruses, including FLU-A, RSV, HRV 14 and CVB3 when added before, during, or after viral infection, with 50% inhibitory concentration (IC₅₀) ranging from 2.7 to 13.8 microg/mL.However, arbidol showed selective antiviral activity against AdV-7, a DNA virus, only when added after infection (therapeutic index (TI) = 5.5) [1]. Arb interacts with the
polar head-group of phospholipid at the membrane interface. Fluorescence studies of interactions between Arb and either tryptophan derivatives or membrane peptides reconstituted into liposomes show that Arb interacts with tryptophan in the micromolar range. Interestingly, apparent binding affinities between lipids and tryptophan residues are comparable with those of Arb IC50 of the hepatitis C virus (HCV) membrane fusion [2]. Arbidol not only prevented the cytopathic effect (CPE) of CVB(5), as demonstrated in an MTT colorimetric assay, when added during or after viral infection, with a 50% inhibitory concentration (IC50) from 2.66 to 6.62 microg/ml, but it also decreased the CVB(5)-RNA level in infected host cells, as shown in semi-quantitative RT-PCR [3]. In vivo: Orally administered arbidol at 50 or 100 mg/kg/day beginning 24 h pre-virus exposure for 6 days significantly reduced mean pulmonary virus yields and the rate of mortality in mice infected with FLU-A (A/PR/8/34 H1N1) [1]. BALB/c mice were used as an animal model to test the Arbidol activity in vivo. Orally administered Arbidol at 50 mg/kg body weight/day (once a day) significantly reduced mean virus yields in the lungs and heart as well as mortality after infection for 6 days [3].

REFERENCES

