JNJ-678

Cat. No.: HY-112180
CAS No.: 1383450-81-4
Molecular Formula: C₂₁H₂₀ClF₃N₄O₃S
Molecular Weight: 500.92
Target: RSV
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 : 65 mg/mL (129.76 mM; Need ultrasonic)
H₂O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions

<table>
<thead>
<tr>
<th>Solvent Concentration</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>1.9963 mL</td>
<td>9.9816 mL</td>
<td>19.9633 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.3993 mL</td>
<td>1.9963 mL</td>
<td>3.9927 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.1996 mL</td>
<td>0.9982 mL</td>
<td>1.9963 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: ≥ 2.17 mg/mL (4.33 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.17 mg/mL (4.33 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.17 mg/mL (4.33 mM); Clear solution

BIological ACtivity

Description
JNJ-678 (JNJ-53718678) is a novel fusion protein inhibitor. JNJ-678 has the potential for respiratory syncytial virus (RSV) treatment.

IC₅₀ & Target
Fusion protein[¹]

In Vitro
JNJ-678 (JNJ-53718678) is a small-molecule respiratory syncytial virus (RSV) fusion inhibitor currently under clinical
JNJ-678 (JNJ-53718678) binds to RSV F protein in its prefusion conformation. JNJ-678 (JNJ-53718678) displays very potent antiviral activity and low cytotoxicity. In addition to its activity against the RSV A2 strain, JNJ-678 (JNJ-53718678) is also highly active against a number of RSV strains from both A and B subtypes. The EC\textsubscript{50} in an RSV infection assay using HeLa cells is 460 pM\textsuperscript{1}.

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

### In Vivo

Oral treatment of neonatal lambs with JNJ-678 (JNJ-53718678), or with an equally active close analog, efficiently inhibits established acute lower respiratory tract infection in the animals, even when treatment is delayed until external signs of respiratory syncytial virus illness have become visible\textsuperscript{1}.

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### PROTOCOL

#### Cell Assay\textsuperscript{1}

The antiviral activity of JNJ-678 (JNJ-53718678) against hMPV is evaluated using a cellular infectious assay in 96-well plates in which Vero/TMPRSS2 cells are infected with recombinant hMPV65. Cells are treated with different concentrations of JNJ-678 (JNJ-53718678) and then infected with recombinant hMPV (1×10\textsuperscript{4} PFU per well). Three days post-virus exposure, viral replication is quantified by measuring fluorescence and the EC\textsubscript{50} is calculated\textsuperscript{1}.

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#### Animal Administration\textsuperscript{1}

**Rats\textsuperscript{1}**

Cotton rats receive either a single dose at 24 h after viral infection or once-daily doses of 40 mg/kg JNJ-678 (JNJ-53718678) by oral gavage, at 24, 48, and 72 h after viral infection. The decrease of viral replication in all experiments is compared to challenged animals that received only the vehicle\textsuperscript{1}.

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### REFERENCES