Lumicitabine

Cat. No.: HY-12983A
CAS No.: 1445385-02-3
Molecular Formula: C₁₈H₂₅ClFN₃O₆
Molecular Weight: 433.86
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: ≥ 50 mg/mL (115.24 mM)

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Solvent Concentration</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 mM</td>
<td>2.3049 mL</td>
<td>11.5245 mL</td>
<td>23.0489 mL</td>
</tr>
<tr>
<td></td>
<td>5 mM</td>
<td>0.4610 mL</td>
<td>2.3049 mL</td>
<td>4.6098 mL</td>
</tr>
<tr>
<td></td>
<td>10 mM</td>
<td>0.2305 mL</td>
<td>1.1524 mL</td>
<td>2.3049 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 (5.76 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.76 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.76 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
Lumicitabine (ALS-008176) is an inhibitor of the respiratory syncytial virus (RSV) polymerase.

In Vitro
Lumicitabine is an orally bioavailable prodrug of the novel RSV replication inhibitor ALS-008112, a cytidine nucleoside analogue[^1].
In Vivo

Lumicitabine demonstrates excellent anti-RSV efficacy and safety in a phase 2 clinical RSV challenge study. It exhibits good oral bioavailability and a high level of 2c-TP in vivo. Lumicitabine has excellent stability profiles in formulations (>24 h storage stability in 0.5% methylcellulose aqueous formulation at rt) and simulates gastric and intestinal fluids (half-life >2 h). Its solubility is adequate to support oral administration in solutions with relatively low percentage of organic solvent and in aqueous suspensions. High levels of NMP and NTP are obtained following oral administration of Lumicitabine to monkeys[2]. In an adult human challenge study, Lumicitabine has shown efficacy against RSV infection[1].

PROTOCOL

Animal Administration [2]

Rats: Lumicitabine are formulated as solutions in PEG400-based vehicles. Pharmacokinetic studies are conducted at 5 mg/kg and for oral PK studies the prodrugs are administered at 5 mg/kg parent nucleoside equivalent doses. Blood samples are typically collected at various time points up to 24 h post dose for rat[2].

Monkeys: Lumicitabine are formulated as solutions in PEG400-based vehicles. Pharmacokinetic studies are conducted at 5 mg/kg and for oral PK studies the prodrugs are administered at 5 mg/kg parent nucleoside equivalent doses. Blood samples are typically collected at various time points up to 12 h post dose for Monkeys[2].

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

REFERENCES
