Cefiderocol

Cat. No.: HY-17628
CAS No.: 1225208-94-5
Molecular Formula: C₃₀H₃₄ClN₇O₁₀S₂
Molecular Weight: 752.21
Target: Bacterial; Antibiotic
Pathway: Anti-infection
Storage: -20°C, stored under nitrogen

* The compound is unstable in solutions, freshly prepared is recommended.

**SOLVENT & SOLUBILITY**

**In Vitro**

<table>
<thead>
<tr>
<th>Solvent Concentration</th>
<th>Mass 1 mg</th>
<th>Mass 5 mg</th>
<th>Mass 10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMSO 1 mM</td>
<td>1.3294 mL</td>
<td>6.6471 mL</td>
<td>13.2942 mL</td>
</tr>
<tr>
<td>DMSO 5 mM</td>
<td>0.2659 mL</td>
<td>1.3294 mL</td>
<td>2.6588 mL</td>
</tr>
<tr>
<td>DMSO 10 mM</td>
<td>0.1329 mL</td>
<td>0.6647 mL</td>
<td>1.3294 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: ≥ 2.75 mg/mL (3.66 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.75 mg/mL (3.66 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.75 mg/mL (3.66 mM); Clear solution

**BIOLOGICAL ACTIVITY**

**Description**

Cefiderocol (S-649266) is a siderophore cephalosporin which has a potent activity against a broad range of aerobic Gram-negative bacterial species with MIC₅₀s of 2 µg/mL or less.

**IC₅₀ & Target**

MIC₅₀: <2 µg/mL (Gram-negative bacteria)\(^1\)

**In Vitro**

Cefiderocol (S-649266), a novel parenteral siderophore cephalosporin conjugated with a catechol moiety, has a characteristic antibacterial spectrum with a potent activity against a broad range of aerobic Gram-negative bacterial species, including carbapenem-resistant strains of Enterobacteriaceae and nonfermenting bacteria such as...
Pseudomonas aeruginosa and Acinetobacter baumannii. Cefiderocol has affinity mainly for PBP3 of Enterobacteriaceae and nonfermenting bacteria similar to that of GR20263. A deficiency of the iron transporter PiuA in P. aeruginosa or both CirA and Fiu in Escherichia coli can cause 16-fold increases in cefiderocol MICs, suggesting that these iron transporters contribute to the permeation of cefiderocol across the outer membrane. The deficiency of OmpK35/36 in Klebsiella pneumoniae and the overproduction of efflux pump MexA-MexB-OprM in P. aeruginosa show no significant impact on the activity of cefiderocol[1].

**PROTOCOL**

**Cell Assay [1]**

For the determination of cefiderocol MIC, iron-depleted cation-adjusted Mueller-Hinton broth (ID-CAMHB) is prepared, except for the cases that are required to determine MICs under specific conditions. The quality control MIC ranges of cefiderocol are 0.06 to 0.5 μg/mL for both E. coli ATCC 25922 and P. aeruginosa ATCC 27853. For anaerobic bacteria, brucella agar supplemented with hemin, vitamin K1, and laked sheep blood is used[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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**REFERENCES**