**ABSTRACT**

Background: Omadacycline is a novel oral tetracycline. In Phase 3 clinical development for use in community-acquired bacterial pneumonia (CABP), omadacycline demonstrated potent activity against a wide range of Gram-negative and Gram-positive bacteria. The objective of this study was to determine the frequency of resistance within clinical isolates of *Streptococcus pneumoniae* and *Haemophilus influenzae*, the first two bacterial species used in Phase 1 clinical isolates, and to evaluate the ability of omadacycline to prevent bacterial regrowth for both species.

Methods: Resistance and mutation frequencies were determined for *S. pneumoniae* and *H. influenzae*. Resistance frequency was determined using a static time kill assay that was performed at two clinical isolates. The PAE was determined using a PAE study that was performed at two clinical isolates. The PAE studies were performed at multiple treatment concentrations either matching or twice the MIC value for each individual isolate. This bactericidal activity was confirmed using a mutation frequency assay at 48 hours.

Results: Omadacycline susceptibility results are shown in Table 1. Omadacycline MIC values ranged from 0.25 to 2 mg/L for both methodologies.

**RESULTS**

**Minimum Inhibitory Concentration**

<table>
<thead>
<tr>
<th>Species</th>
<th>Method</th>
<th>MIC (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. pneumoniae</td>
<td>CLSI</td>
<td>0.5</td>
</tr>
<tr>
<td>H. influenzae</td>
<td>CLSI</td>
<td>0.5</td>
</tr>
</tbody>
</table>

**Mutation Frequency**

- No isolates were observed on any drug-separated plates, indicating that MDR isolates were not generated.

**PAE**

- The PAE was determined to be 1 hour for *S. pneumoniae* and 2 hours for *H. influenzae*.

**CONCLUSIONS**

- Omadacycline susceptibility data was obtained and showed potent activity against *S. pneumoniae* and *H. influenzae*.
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**REFERENCES**


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