## Evaluation of Fosfomycin Activity When Combined with Selected Antimicrobial Agents and Tested Against Bacterial Isolates Using Checkerboard Methods

**PR RHOMBERG**, **JL LINDELY**, **HS SADER**, **K SWEENEY**, **EJ ELLIS-GROSSE**, **RK FLAMM**  
**JMI Laboratories, North Liberty, Iowa, USA; **Zavante Therapeutics, Inc, San Diego, California, USA

### Materials and Methods

- **Introduction**: Fosfomycin has been widely used to treat a variety of infections, including urinary tract, pelvic inflammatory disease, and enteric infections. However, with the increasing prevalence of antimicrobial resistance, it is important to evaluate the activity of fosfomycin in combination with other antimicrobial agents. This study aimed to determine the activity of fosfomycin in combination with a variety of currently used antimicrobial agents against clinical isolates of Enterobacteriaceae and other bacterial species.

- **Methods**: Twenty isolates from 4 species groups were tested in checkerboard configurations. Each isolate was tested with up to 10 antimicrobial agents from several classes to summarize fractional inhibitory concentration (FIC) values for selected isolates of Enterobacteriaceae and other bacterial species.

- **Table 1**: Summary of fractional inhibitory concentration (FIC) values for selected isolates of Enterobacteriaceae and other bacterial species tested against fosfomycin.

### Results

- **Fosfomycin antimicrobial activity**: Fosfomycin showed synergy with neomycin (29%), trimethoprim (44%), and cefotaxime (4%) when tested against clinical isolates of Enterobacteriaceae.

- **Effectiveness of fosfomycin in combination with other antimicrobial agents**: Fosfomycin was used in combination with a variety of antimicrobial agents, and the FIC index was calculated for each FOS/agent combination at the minimum, maximum, and mean FIC values.

### Conclusions

- **Fosfomycin in combination with other antimicrobial agents**: The highest rates of synergy were observed when fosfomycin was combined with aminoglycosides, penicillins, and cephalosporins. Synergy rates of 8.0% to 25.7% were observed when combined with fosfomycin.

- **Implications**: The findings suggest that fosfomycin may be a useful adjunct to current antimicrobial therapy for the treatment of infections caused by antimicrobial-resistant bacteria.

### Acknowledgements

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### References

2. Clinical and Laboratory Standards Institute (2017). \(\text{CLSI M2A3-C.pdf}\)

### Table 1 Summary of fractional inhibitory concentration (FIC) values for selected isolates of Enterobacteriaceae and other bacterial species tested against fosfomycin

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<th>Antimicrobial Agent</th>
<th>MIC (μg/mL)</th>
<th>FOS</th>
<th>MIC (μg/mL)</th>
<th>FIC</th>
<th>MIC (μg/mL)</th>
<th>FIC</th>
<th>MIC (μg/mL)</th>
<th>FIC</th>
<th>MIC (μg/mL)</th>
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**Contact Information:**  
Paul R. Rhomberg, B.S.  
JMI Laboratories  
345 Beaver Creek Center, Suite A  
North Liberty, IA 52317  
Phone: (319) 665-3371  
Fax: (319) 665-3371  
Email: paul-rhomberg@jmilabs.com