**Activity of MK-3118, a New Oral Glucan Synthase Inhibitor, Tested Against Candida and Aspergillus spp. using Two Reference Broth Microdilution Methods**

**M-1714**

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# INTRODUCTION

The echinocandins, ravuconazole, and micafungin are new antifungal agents. However, caspofungin, anidulafungin, and micafungin show cross-resistance to fusidic acid (Fks) hot spot (HS) mutants. MK-3118 is a potent inhibitor of fungal glucan synthase. The aim of this study was to determine the efficacy of MK-3118 against Fks HS and FLC-R mutants.

# MATERIALS AND METHODS

### Antibiotics

- **C. albicans** C. tropicalis, C. glabrata, and C. parapsilosis were from the collection of Pathology Department.
- **Aspergillus fumigatus**, **A. niger**, and **A. terreus** were from the collection of Microbiology Department.
- **C. tropicalis** displaying Fks HS and FLC-R mutations.

### In Vivo and In Vitro Testing

- **In vivo testing**: MK-3118 was tested in a mouse model of sepsis caused by S. aureus. The efficacy of MK-3118 was compared to that of anidulafungin.
- **In vitro testing**: MK-3118 was tested against a panel of Fks HS and FLC-R mutants using the broth microdilution method.

### Statistical Analysis

- **Correlation**: The results were analyzed using Pearson’s correlation coefficient.

# RESULTS

- **MK-3118** was active against 31 Candida spp. (MIC range, 0.06-1 µg/mL), C. glabrata (MIC range, 0.12-2 µg/mL), C. glabrata (MIC range, 0.5-2 µg/mL), and C. glabrata (MIC range, 0.06-1 µg/mL).
- **MK-3118** was also active against 31 Aspergillus spp. (MIC range, 0.25-1 µg/mL).
- The MIC values of MK-3118 against Fks HS and FLC-R mutants were determined by broth microdilution and compared to those of caspofungin and fluconazole.

# CONCLUSIONS

- MK-3118 is a potent inhibitor of fungal glucan synthase and may be a promising alternative to the echinocandins for the treatment of infections caused by Fks HS and FLC-R mutants.
- MK-3118 showed better efficacy than caspofungin and fluconazole in the mouse model of sepsis.

# ACKNOWLEDGEMENTS

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# REFERENCES


# Table 1: Comparison of GLSI and EUCAST broth microdilution methods when testing the alpha glucan synthase inhibitor, MK-3118, against Candida and Aspergillus spp.

<table>
<thead>
<tr>
<th><strong>Strain</strong></th>
<th><strong>MIC (µg/mL)</strong></th>
<th><strong>GLSI</strong></th>
<th><strong>EUCAST</strong></th>
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<tbody>
<tr>
<td><strong>C. albicans</strong></td>
<td>0.5</td>
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<td><strong>C. tropicalis</strong></td>
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# Table 2: Comparison of EBCM and EUCAST broth microdilution methods when testing the alpha glucan synthase inhibitor, MK-3118, against Candida and Aspergillus spp.

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