**Results.** EOs oregano, thyme, cinnamon bark, and lemongrass had the largest zones of inhibition against Gram-positive organisms and were larger than those of vancomycin for MRSA/MSSA. Cinnamon bark had the largest zone of inhibition against *P. aeruginosa* and was larger than that of meropenem. Oregano, thyme, cinnamon bark had the largest zones of inhibition against *Enterobacteriaceae* and were larger than those of meropenem against *K. pneumoniae* and *E. cloacae*.

**Disclosures.** EOs showed significant in vitro activity against clinically isolated, including CRE. Further study of the clinical activity of essential oils is warranted.

**Disclosures.** J. E. Patterson, Young Living Essential Oils: Independent Contractor, Salary

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**Table 1. Median Zone Diameters (mm for Essential Oils)**

| Essential Oils | Zone Diameter |
|----------------|--------------|
| Oregano | 15 |
| Thyme | 15 |
| Cinnamon Bark | 15 |
| Lemon grass | 15 |
| Manuka | 15 |
| Clove | 15 |
| Tea | 15 |
| Thieves | 15 |
| Vanco | 15 |

ND = not done

**Conclusion.** Essential oils showed significant in vitro activity against clinical isolates, including CRE. Further study of the clinical activity of essential oils is warranted.

**Disclosures.** J. E. Patterson, Young Living Essential Oils: Independent Contractor, Salary

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**1212. Lysin CF-301 Demonstrates In Vitro Synergy with Conventional Antibiotics against *Staphylococcus aureus***

Karen Sauté, BS; Alena Jandourek, BS; Caral Cassino, MD; and Raymond Schuch, PhD; ContraFect Corp, Yonkers, New York, *ContraFect Corp, Yonkers, New York

**Session.** 147. Expanded Spectrum – New Antimicrobial Susceptibility Testing Friday, October 6, 2017: 12:30 PM

**Background.** CF-301 is a novel, recombinantly-produced bacteriophage-derived lysin (cell wall hydrolase) and is the first agent of this class to enter clinical development in the US for the treatment of bacteremia including endocarditis due to *S. aureus*. This study evaluated the in vitro activity of CF-301 combined with each of 7 anti-staphylococcal antibiotics including those considered to be current standard of care treatments for *S. aureus* bacteraemia (daptomycin, vancomycin, oxacillin, nafcillin, and ceftaroline) as well as linezolid and tetracycline.

**Methods.** MICs for CF-301 were determined using a new AST medium for broth microdilution recently endorsed by the CLSI for use with CF-301. The testing medium consisted of cation-adjusted MHB supplemented with 25% horse serum and 0.5 mM DTT. Synergy was determined by checkerboard microdilution using the fractional inhibitory concentration index (FICI) for each combination in triplicate. For each antibiostatic tested, an FIC index was derived from each of set checkerboards by averaging 3 consecutive FIC values along the growth/no growth interface for each plate. Thus, 9 values were used to generate the final mean. Synergy was defined as an FICI of ≤0.5; indifference was >0.5 to <2; and antagonism was ≥2. Each combination was examined against 10 MSSA and 10 MRSA strains.

**Results.** CF-301 synergized with daptomycin and vancomycin against each MSSA and MRSA strain, with FICI values between 0.254 and 0.5. Synergy was similarly observed against all 20 strains tested with oxacillin and nafcillin (FICI = 0.25–0.5); for the third β-lactam, ceftaroline, synergy was observed with 17 strains (FICI = 0.75, for the remaining 3 strains). CF-301 synergized with tetracycline against 70% of the strains (FICI = 0.375–0.5), and was indifferent with the remainder (FICI = 0.625–1). CF-301 synergized with linezolid against 55% of the strains (FICI = 0.375–0.5), and was indifferent with the remainder (FICI = 0.625–0.75).

**Conclusion.** The broadly synergistic activity of CF-301 with conventional anti-staphylococcal antibiotics against MSSA and MRSA suggests that CF-301 may afford therapeutic benefit by potentiating the activity antibiotics to treat serious infections for which there is an unmet medical need to improve outcomes.

**Disclosures.** K. Sauté, ContraFect Corp: Employee, Salary; A. Jandourek, ContraFect Corp: Employee, Salary; C. Cassino, ContraFect Corp: Employee, Salary; B. Schuch, ContraFect Corp: Employee, Salary

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**1213. Activity of Antistaphylococcal Lysin CF-301 against Contemporary *Staphylococcus aureus* Clinical Isolates from the USA and Europe**

Jun Oh, PhD; Maria Traczewski, BS; and Raymond Schuch, PhD; Microbiology, ContraFect Corp, Yonkers, New York, *ContraFect Corp, Yonkers, New York

**Session.** 147. Expanded Spectrum – New Antimicrobial Susceptibility Testing Friday, October 6, 2017: 12:30 PM

**Background.** CF-301 is a novel, recombinantly-produced bacteriophage-derived lysin (cell wall hydrolase) and is the first agent of this class to enter clinical development in the US for the treatment of bacteremia including endocarditis due to *S. aureus*. This study evaluated the in vitro activity of CF-301 combined with each of 7 anti-staphylococcal antibiotics including those considered to be current standard of care treatments for *S. aureus* bacteraemia (daptomycin, vancomycin, oxacillin, nafcillin, and ceftaroline) as well as linezolid and tetracycline.

**Methods.** MICs for CF-301 were determined using a new AST medium for broth microdilution recently endorsed by the CLSI for use with CF-301. The testing medium consisted of cation-adjusted MHB supplemented with 25% horse serum and 0.5 mM DTT. Synergy was determined by checkerboard microdilution using the fractional inhibitory concentration index (FICI) for each combination in triplicate. For each antibiostatic tested, an FIC index was derived from each of set checkerboards by averaging 3 consecutive FIC values along the growth/no growth interface for each plate. Thus, 9 values were used to generate the final mean. Synergy was defined as an FICI of ≤0.5; indifference was >0.5 to <2; and antagonism was ≥2. Each combination was examined against 10 MSSA and 10 MRSA strains.

**Results.** CF-301 synergized with daptomycin and vancomycin against each MSSA and MRSA strain, with FICI values between 0.254 and 0.5. Synergy was similarly observed against all 20 strains tested with oxacillin and nafcillin (FICI = 0.25–0.5); for the third β-lactam, ceftaroline, synergy was observed with 17 strains (FICI = 0.75, for the remaining 3 strains). CF-301 synergized with tetracycline against 70% of the strains (FICI = 0.375–0.5), and was indifferent with the remainder (FICI = 0.625–1). CF-301 synergized with linezolid against 55% of the strains (FICI = 0.375–0.5), and was indifferent with the remainder (FICI = 0.625–0.75).

**Conclusion.** The broadly synergistic activity of CF-301 with conventional anti-staphylococcal antibiotics against MSSA and MRSA suggests that CF-301 may afford therapeutic benefit by potentiating the activity antibiotics to treat serious infections for which there is an unmet medical need to improve outcomes.

**Disclosures.** K. Sauté, ContraFect Corp: Employee, Salary; A. Jandourek, ContraFect Corp: Employee, Salary; C. Cassino, ContraFect Corp: Employee, Salary; B. Schuch, ContraFect Corp: Employee, Salary

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