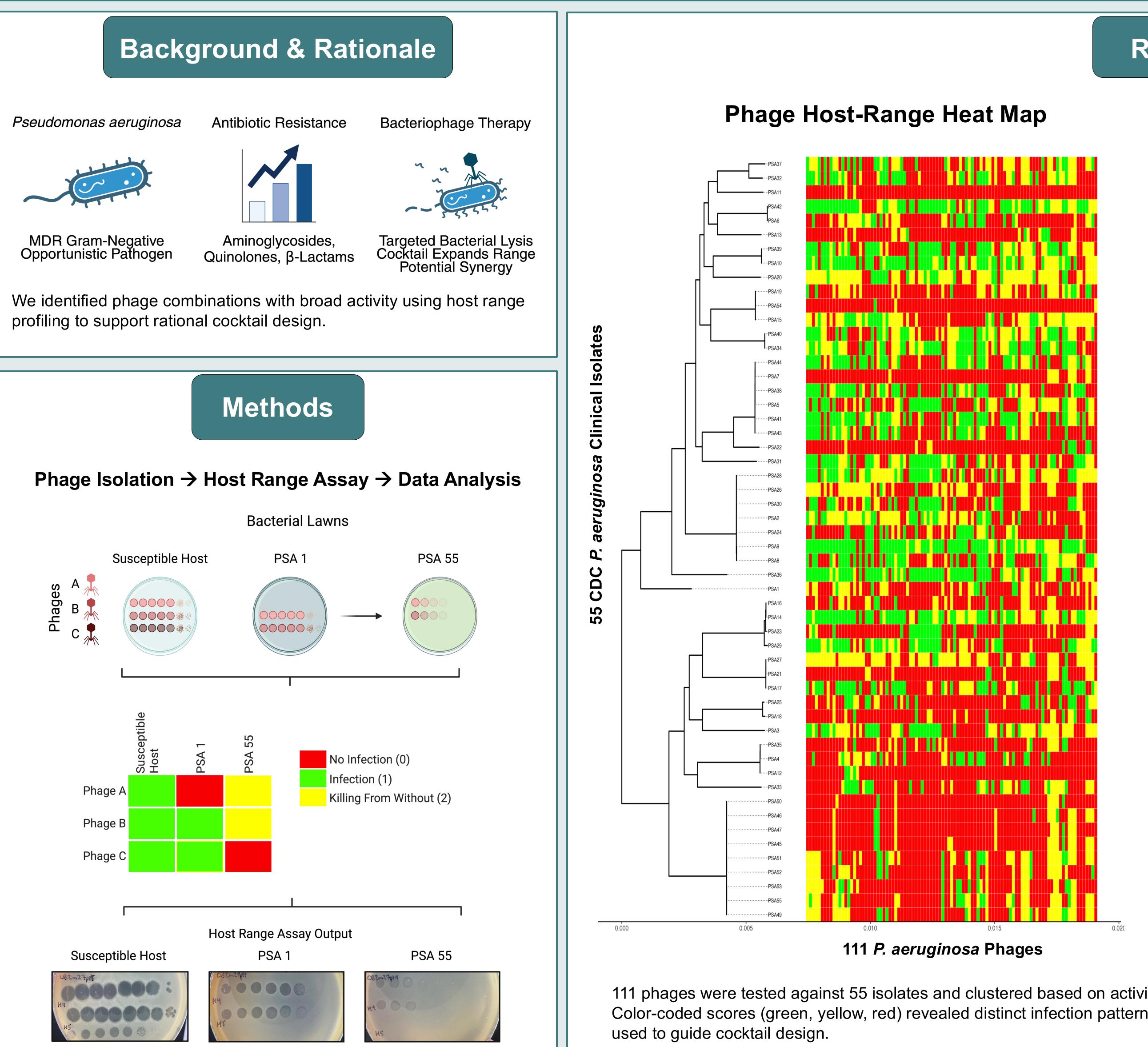
## AAR-SATURDAY-488

# Exploiting Host Range Data to Design Phage Cocktails Against Multi-Drug-Resistant Pseudomonas aeruginosa

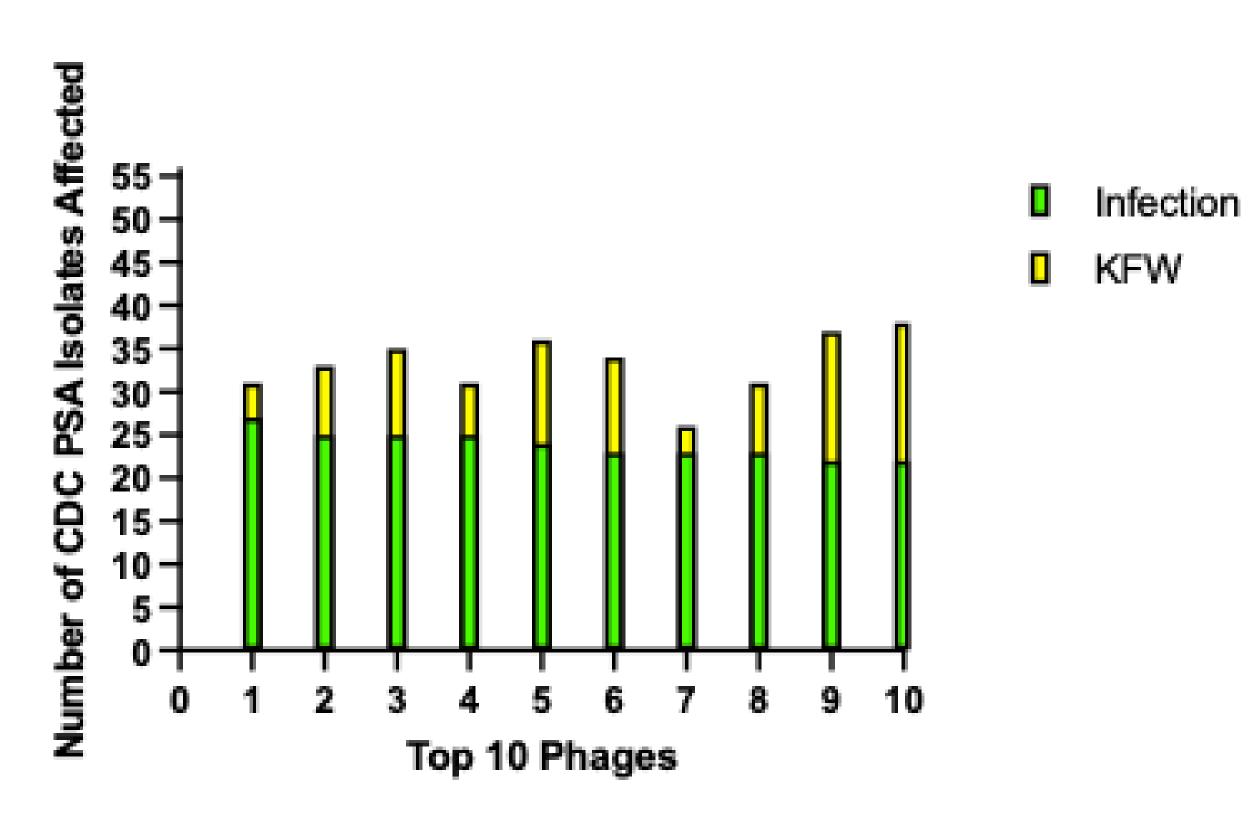
Abstract The rise of multidrug-resistant (MDR) Pseudomonas aeruginosa presents a significant challenge in treating wound infections, and other life-threatening conditions. Phage therapy has emerged as a promising alternative to address antimicrobial resistance. A total of 105 Pseudomonas aeruginosa phages were isolation and purification, each phage's host range was characterized against a panel of 55 CDC antibiotic-resistant clinical isolates of Pseudomonas aeruginosa and compared against its isolation. Phages that exhibited lysis without plaque formation were categorized as "killing from without" (KFW), while phages that exhibited plaque formation were categorized as "infection." This systematic analysis identified phages with broad host ranges, which were categorized as "infection." This systematic analysis identified phages with broad host ranges with broad host ranges. formulated, demonstrating coverage of 85.5% (5-phage cocktail), 89.1% (6-phage cocktail), 89.1% (6-phage cocktail), and 94.4% (9-phage cocktail), and 94.4% (9-phage cocktail), and 94.4% (10-phage cocktail), and 94.4% methods, these cocktails could play a pivotal role in managing antibiotic-resistant infective alternative in addressing the global threat of antimicrobial resistance.



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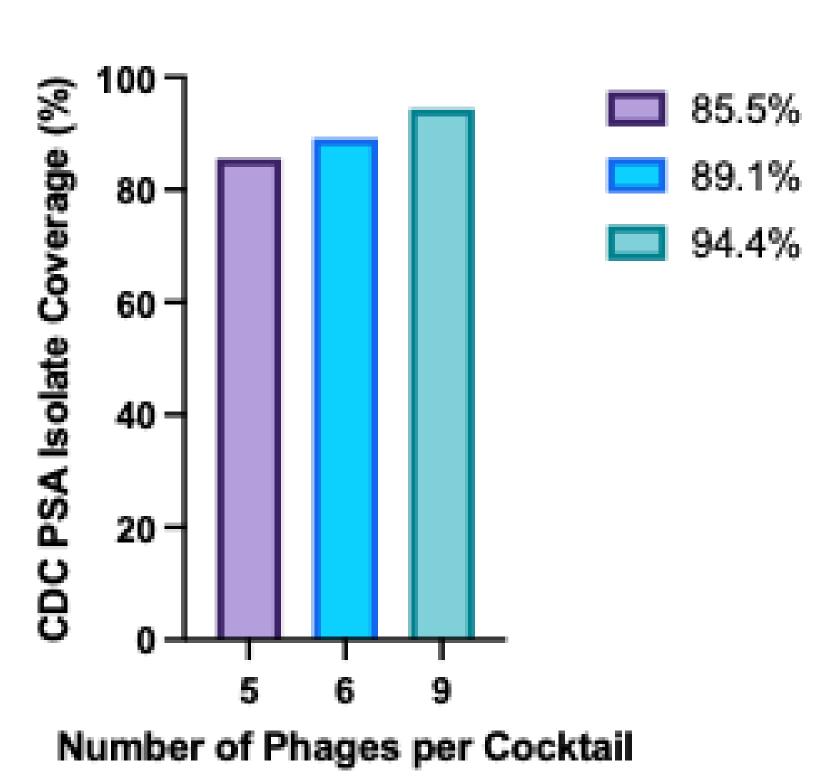
As few as 5 phages covered 85.5% of the isolate panel, while 9 phages 111 phages were tested against 55 isolates and clustered based on activity. reached 94.4%. This validates a systematic strategy to optimize therapeutic Color-coded scores (green, yellow, red) revealed distinct infection patterns coverage against MDR *P. aeruginosa*.

## Results



#### Infection Profiles of the Top 10 Phages

Top phages varied in their mechanism of killing—some favoring lytic infection, while others showed strong KFW.



### **Cocktail Coverage**



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