Supplementary Material

# Supplementary Tables

Table S1: List of anti-biofilm bacteriophage therapy trials

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| Author, year | Biofilm-forming bacteria | Phage strain | Growth site | Results |
| (Cano et al., 2021) | *K. pneumoniae* | KpJH46Φ2 | Bacterial site in the right lower extremity of the patient; 96-well polystyrene microtitre plates | * In vivo anti-biofilm activity showed patients recovering from swelling, pain, and limited range of motion of right lower extremity. The 34-week follow-up showed no sign of symptom recurrence. * In vitro anti-biofilm activity showed a trend in biofilm biomass reduction after 22 hours of its exposure to phage. |
| (Manoharadas et al., 2021) | *S. aureus* | ɸ44AHJD | Sterile glass coverslips | * Eliminated existing biofilm on smooth glass surface after 72h of infection. * Revealed the possibility of removing biofilm on a clinically relevant smooth glass surface. |
| *E. coli* | ɸX174 |
| (D'Andrea et al., 2020) | *E. faecalis* | vB\_EfaH\_EF1TV | 96-well microtiter plates with TSB | * Biofilm reduction observed in confocal laser scanning microscopy. |
| (Szymczak et al., 2020) | *B. bronchiseptica* | vB\_BbrP\_BB8 | 96-well polystyrene microtiter plates with BHI medium | * Led to 75%, 71%, and 59% of biofilm biomass reduction for phage concentrations of 107, 105, and 103 PFU/mL, respectively. |
| (Rizzo et al., 2020) | MDR S. gallinarum | UPF\_BP1 and UPF\_BP2 | 96-well polystyrene plates with TSB medium | * 85% of the biofilm strains were susceptible to at least one phage, while among those are 74% lysed by both phages. |
| (Adnan et al., 2020) | MDR *P. aeruginosa* | MA-1 | 96-well plates with TSB medium | * Led to 2.1 fold, 2,5 fold, and 3.2 fold reductions in biomass in 24, 48, and 72h biofilm, respectively. |
| (Morris et al., 2019) | *S. aureus* | StaPh\_1, StaPh\_3, StaPh\_4, StaPh\_11, StaPh\_16 | 3D-printed, porous titanium cylindrical scaffolds. | * Led to log-CFU/cm2 biomass reduction of 6.8 to 6.2 after exposure to StaPhage cocktail, while a decrease in the thickness and area of the biofilm was also seen after 48 hours of cocktail exposure. * Demonstrated the possibility of removing biofilm on clinically relevant orthopedic material. |
| (Gupta et al., 2019) | *E. coli, S. aureus, P. aeruginosa* | Bacteria-specific phages | Human chronic non-healing wound | * Led to significant improvement in wound healing among 20 patients after 3 to 5 doses of topical bacteriophage therapy, with 7 of the patients reaching complete healing after 21 days. |
| (Yuan et al., 2019) | MDR *P. aeruginosa* | vB\_PaeM\_LS1 | Coverslips placed over a 6-well plate with LB medium | * Eliminated existing biofilm |
| (Cha et al., 2019) | MDR *S. aureus* | CSA13 | 96‐well polystyrene plate with TSB | * Biofilms formed by MSSA and MRSA were reduced by 78% and 93% in its biomass after 24h of infection. |
| (Jamal et al., 2019) | MDR *E. cloacae* | MJ2 | Stainless steel plates with TSB | * Led to 2.8-. 3-, and 3.5-log reductions in biomass in 24, 72, and 120h biofilm, respectively. |
| (Gu et al., 2019) | MDR uropathogenic *E. coli* | vB\_EcoP-EG1 | 96-well plates with LB medium | * Biofilms formed by MG1655 and 390G7 were reduced by 60% and 50% in its biomass after 24h of infection, respectively. |
| (Kwiatek et al., 2017) | *P. aeruginosa* | MAG1 and MAG4 | 96-well microtiter plates | * Led to 60% and 80% reduction in biofilm biomass when using MAG1 and MAG4 after 8h of infection, respectively. * MAG1 selected less for phage-resistant clones * The efficacy of the phage cocktail was similar to that of MAG4 alone |
| (Shafique et al., 2017) | *P. aeruginosa* | JHP | 96-well polystyrene microtitre plates | * Phage treatment before biofilm formation decreased bacterial cell counts for up to 9 logs (>95% removal) |
| (Alves et al., 2016) | *P. aeruginosa* | DL 52, DL 54, DL 60, DL 62, DL 64, DL 68 | 96-well polystyrene microtitre plates | * Static and dynamic biofilms were eradicated almost completely after 4h and 48h of phage cocktail infections, respectively. * Applied phage cocktail therapy on the dispersion of *P. aeruginosa* biofilm. |
| (Lehman and Donlan, 2015) | *P. aeruginosa, P. mirabilis* | Bacteria-specific phages | Artificial urine medium | * Led to log-CFU/cm2 biofilm reduction of 4 and 2 for *P. aeruginosa* and *P. mirabilis* biofilm after 48h of cocktail pretreatment, respectively. * Demonstrated the significance of phage cocktail pretreatment on reducing mixed-species biofilm formed on a urinary catheter. |
| (Danis-Wlodarczyk et al., 2015) | *P. aeruginosa* | KTN28 | 96-well microtiter plates with TSB medium | * Led to a significant reduction of biofilm biomass in 24h, 48h, and 72h biofilm |
| (Jamal et al., 2015) | MDR *K.pneumoniae* | Z | 96-well microtitre plates | * Led to 2 fold, and 3 fold reductions in biomass in 24 and 48h biofilm, respectively. |
| (Nzakizwanayo et al., 2015) | *P. mirabilis* | Bacteria-specific Phages | Bladder model (double-walled glass chamber) | * Led to a significant reduction in crystalline biofilm formation but not the number of planktonic cells. |
| (Alves et al., 2014) | *S. aureus* | DRA88, K | 96-well polystyrene tissue culture microplates | * Biofilms formed separately by 15981, MRSA 252, H325 were either eradicated or disrupted by more than 50% after 48h of infection at MOI of 10. * Applied phage cocktail therapy on the dispersion of *S. aureus* biofilm. |
| (Yele et al., 2012) | *A. baumannii* | AB7-IBB1 | Abiotic surface (polystyrene);  biotic surface (human embryonic kidney 293 cell line) | * 75% of the biofilms were removed from the abiotic surface at an MOI of 105 with 102 CFU/well. * 50% of the biofilms were inhibited from the biotic surfaces at an MOI of 103 with 102 CFU/well. |
| (Kelly et al., 2012) | *S. aureus* | K, and six modified derivatives (K.W73365, K.ST22ISA67, K.ST39ISA108, K.MS811, K.ST30ISA58, K.M255039) | 96-well microtiter plate with Trypticase soy broth (TSB) medium | * Led to a significant reduction in biofilm biomass after 72h of cocktail infection * Initial contact of the phage cocktail led to complete inhibition of biofilm formation over a 48h period with no indication of phage resistance |
| (Kim et al., 2012) | *P. aeruginosa, S. aureus, S. epidermidis, Staphylococcus hominis (S. hominis)* | PA1Ø | 96-well microtiter plate | * The reductions of numbers in mixed bacteria cells in phage-treated biofilms were evident, while electron microscopy analysis also displayed biofilm removal activities * Presented the board bactericidal spectrum of such phage and the possibility of using a single phage strain to treat mixed infections caused by multiple bacteria |
| (Son et al., 2010) | *S. aureus* | SAP-2 | 96-well polystyrene microplate well | * While phage showed its ability to erase biofilm, phage-derived endolysin SAL-2 expressed a broader spectrum of activity. * Shed light on the separate use of phage-derived enzymes. |
| (Curtin and Donlan, 2006) | *S. epidermidis* | 456 | Lubri-sil all-silicone 16 French Foley catheters | * Led to log-CFU/cm2 biofilm reduction of 4.47 and 2.34 with and without supplemental divalent cations, respectively. * Pretreatment of phage on the catheter surface prevented biofilm formation. |
| (Doolittle et al., 1995) | *E. coli* | T4 | Polyvinyl chloride coupons placed in modified Robbins devices | * Eliminated existing biofilm |

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