Supplementary Material

Supplementary Table 1. Phage therapy studies related to CF and/or compassionate use in the past 15 years

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| Phages used | Bacterial species | Clinical presentations/ complications | Singular/ cocktail preparation | Clinical outcome(s) | Reference |
| * Biophage-PA (BC-BP-01, BC-BP-02, BC-BP-03, BC-BP-04, BC-BP-05, BC-BP-06)
 | *Pseudomonas aeruginosa*# | Chronic otitis with antibiotic-resistant *P. aeruginosa* | Cocktail | 3 out of 12 patients had <10% *P. aeruginosa* load as compared to day 1 | (Wright et al. 2009) |
| * BFC-1 (14/1, PNM, ISP)
 | *Staphylococcus aureus**Pseudomonas aeruginosa*# | Infected burn wound | Cocktail | Bacterial load remained unchanged after application of BFC-1 or standard treatment, no adverse results observed from eight patients | (Merabishvili et al. 2009; Rose et al. 2014) |
| * WPP-201
 | *Pseudomonas aeruginosa**Staphylococcus aureus**Escherichia coli*# | Chronic venous leg ulcer | Cocktail | No significant improved healing rate nor frequency | (Rhoads et al. 2009) |
| * PAK-P1
 | *Pseudomonas aeruginosa*\*\* | Acute lung infection in mouse model | Singular | 100% survival with phage-to-bacteria ratio of 10:1 and 1:1. 80% survival with phage-to-bacteria ratio of 1:1 in second independent experiment | (Debarbieux et al. 2010) |
| * PAK\_P3
* Pc\_CHA
 | *Pseudomonas aeruginosa*\*\* | Acute lung infection in mouse model | Singular | Improved survival and reduced bacterial counts over two magnitude | (Morello et al. 2011) |
| * Pyobacteriophage
* *Staphylococcus* bacteriophage
* Fersis
 | *Staphylococcus aureus*+ | Netherton syndrome, chronic skin infection with antibiotic-resistant *S. aureus*  | Cocktail | Skin regeneration and no hospitalization required for general infection 6 months after starting on phage therapy | (Zhvania et al. 2017) |
| * PAK\_P1
* PAK\_P2
* PAK\_P3
* PAK\_P4
* PAK\_P5
* P3\_CHA
* CHA\_P1
* PhiKZ
* LUZ19
* LBL3
 | *Pseudomonas aeruginosa*\*\* | CF clinical *P. aeruginosa* suspended in 58 sputum samples collected from 58 CF patients | Cocktail | 35.1% coverage of cocktail against all *P. aeruginosa* isolated from 58 CF patients | (Saussereau et al. 2014) |
| * T4-like (AB2, 4, 6, 11, 46, 50, 55; JS34, 37, 98, D1.4)
 | *Escherichia coli*# | *E. coli* diarrhea  | Cocktail | Clinical trial was terminated as there was no significant improvement between treatment with T4-like, Microgen ColiProteus phage cocktail and placebo | (Sarker et al. 2016) |
| * PELP20
 | *Pseudomonas aeruginosa* (LESB65 and LESB65 host-adapted derivative strain NP22\_2)\*\* | Chronic lung infection in mouse model | Singular | 3-log reduction in artificial sputum medium biofilm model and complete clearance of *P. aeruginosa* from mouse lungs | (Waters et al. 2017) |
| * **ϕPC** (AC4, C1P12, C2P21, C2P24)
* **ϕIV** (AB-Navy1, AB-Navy4, AB-Navy71, AB-Navy97)
* **ϕIVB** (AB-Navy71, AbTP3ϕ1)
 | *Acinetobacter baumannii*+ | Necrotizing pancreatic with pseudocyst infections with MDR *A. baumannii* | Cocktail | Full recovery | (Schooley et al. 2017) |
| * PYO2
* DEV
* E215
* E217
* PAK\_P1
* PAK\_P4
 | *Pseudomonas aeruginosa*\*\* (CF-derived *P. aeruginosa* used to isolate novel phages) | Acute respiratory infection in mice and bacteraemia in wax moth (*Galleria mellonella*) | Cocktail | Reduction of bacterial burden in lungs and 100% survival rate of infected mice, increased survival rate post-infection | (Forti et al. 2018) |
| * Unpublished
 | *Acinetobacter baumannii*+ | Craniectomy with postoperative infections with MDR *A. baumannii*  | Unpublished | Patient expired | (LaVergne et al. 2018) |
| * OMKO1
 | *Pseudomonas aeruginosa*+ | Aortic graft infection with MDR *P. aeruginosa* | Singular | No further evidence of bacterial infection | (Chan et al. 2018) |
| * *Achromobacter* phages
 | *Achromobacter xylosoxidans*\* | Chronic lung infection with MDR *A. xylosoxidans* pneumonia | Cocktail | Improved lung function (FEV1), reduction of cough and resolution of dyspnea  | (Hoyle et al. 2018) |
| * Muddy
* BPs33ΔHTH-HRM10
* ZoeJΔ45
 | *Mycobacterium abscessus*\* | Disseminated mycobacterial infection after double lung transplant in CF patient | Cocktail | Full recovery | (Dedrick et al. 2019) |
| * AB-PA01
 | *Pseudomonas aeruginosa*\* | Pulmonary exacerbation that further deteriorated to acute-on-chronic respiratory failure  | Cocktail | Full recovery | (Law et al. 2019) |
| * AB-PA01
* AB-PA01 m1
* Navy cocktail 1
* Navy cocktail 2
 | *Pseudomonas aeruginosa+* | Post bilateral lung transplant complication, multiple episodes of pneumonia | Cocktail (in combination with antibiotics) | No adverse effect recorded and patient discharged from hospital | (Aslam et al. 2019) |
| * AB-PA01
 | *Pseudomonas aeruginosa*+ | Non-CF bronchiectasis, recurrent MDR *P. aeruginosa* infections post- lung transplant | Cocktail (in combination with antibiotics) | No adverse effect recorded and patient discharged with colistin for suppressive therapy |
| * BdPF16phi4281
 | *Burkholderia dolosa\** | *B. dolosa* colonization post-bilateral lung transplant, recurrent *B. dolosa* pneumonia | Singular (in combination with antibiotics) | No adverse effect recorded from phage therapy, patient expired due to clinical deterioration)  |
| * φAbKT21phi3
* φKpKT21phi1
 | *Klebsiella pneumonia, Acinetobacter baumannii*+ | Left bicondylar tibial plateau fracture infected with MDR *K. pneumonia* and XDR *A. baumannii* | Cocktail (in combination with antibiotics) | Full recovery | (Nir-Paz et al. 2019) |
| * PP1131
* (PhagoBurn)
 | *Pseudomonas aeruginosa*# | Burn wound infections | Cocktail | Trial stopped due to insufficient efficacy, PP1131 decreased bacterial burden in wounds slower than standard of care | (Jault et al. 2019) |
| * Unknown
 | *Klebsiella pneumonia#* | Chronic relapsing urinary tract infection after renal transplant | Not reported (bacteriophage suspension obtained from Eliava Institute) | Urethritis symptoms resolved (treated in combination with meropenem) | (Kuipers et al. 2019) |
| * AB-SA01
 | *Staphylococcus aureus*+ | Severe bacteraemia (predicted average six-month mortality rate at 44%)  | Cocktail  | Seven out of 13 patients survived past 90 days | (Petrovic Fabijan et al. 2020) |
| * AB-SA01
 | *Staphylococcus aureus* | Chronic rhinosinusitis | Cocktail | 2 out of 9 recruited patients had eradication of infection | (Ooi et al. 2019) |
| * EcoActive

(NCT03808103) | *Escherichia coli*# | Adherent Invasive *Escherichia coli* (AIEC) in Crohn’s Disease | Cocktail | Currently recruiting | <https://clinicaltrials.gov/ct2/show/NCT03808103> |
| * NCT04287478
 | *Klebsiella pneumonia,**Escherichia coli*# | Urinary tract infections | Cocktail | Not yet recruiting | <https://clinicaltrials.gov/ct2/show/NCT04287478?term=phage+therapy&draw=2&rank=2> |

(\* - Compassionate use on CF patient, \*\* - Report using CF-derived bacterial samples, # - clinical trial, + - Compassionate use)