



CF Phage – therapeutic to treat Cystic Fibrosis lung infections

VALUE PROPOSITION

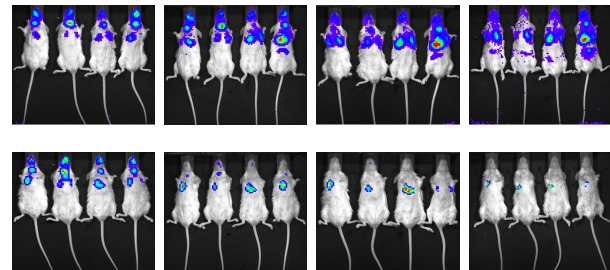
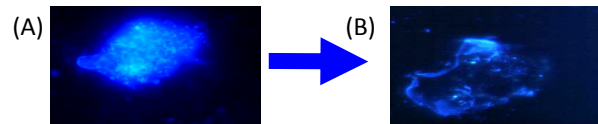
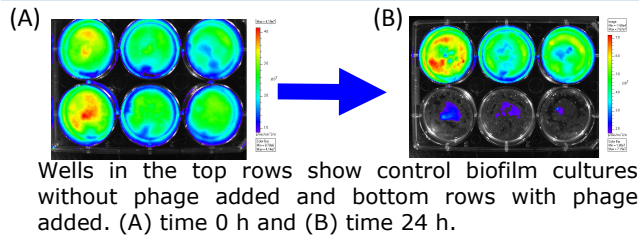
A phage cocktail preparation containing phages NH-4 and MR299-2 is effective in clearing (killing) *Pseudomonas* in acute infections in murine lungs and in *Pseudomonas* biofilms on human cell-lines. The phage cocktail has broad range activity against *Pseudomonas* isolated from Cystic Fibrosis (CF) patients and represents a promising phage therapy to treat *Pseudomonas* lung infections in CF patients. Phage therapy is particularly beneficial over antibiotic therapy because *Pseudomonas* biofilms show high-level antibiotic resistance

THE TECHNOLOGY

Researchers from the Alimentary Pharmabiotic Centre (APC) have shown that certain virulent phages, isolated from environmental samples, have the potential to kill a number of *P. aeruginosa* strains isolated from CF patients. A phage cocktail preparation consisting of phages ϕ NH-4 (a myovirus) and ϕ 299-2 (a podovirus) have been shown to be effective in killing and clearing *Pseudomonas* both *in vitro* (in *Pseudomonas* biofilms growing on CF airway derived bronchial epithelial, CFBE41o- cells) and *in vivo* (in acute lung infections in mice) models.

The most prevalent and severe chronic lung infection in CF patients is caused by biofilms of *P. aeruginosa*. Studies have shown that organisms in biofilms can tolerate 10-1000 fold higher levels of antibiotics than planktonic bacteria. Consequently, there is an urgent need for an alternative, non-antibiotic approach to treat lung infections in CF patients such as phage therapy.

The advantage of the phage cocktail preparation is that it has broad range activity against different *Pseudomonas* CF isolates. Once delivered, the phages rapidly kill the virulent hosts and their ability to generate more phage particles results in further pathogen kill.



DEVELOPMENT OBJECTIVES

- Development of nasal drug delivery systems
- Phase 1 clinical trial

FIELDS OF APPLICATION

- Cystic Fibrosis therapeutic

FUNDING



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