



PACE Award Profile: PhalconBio

Advancing dual-action, inhalable phage treatments for bronchiectasis-associated *Pseudomonas aeruginosa* infections

Project title: Engineered Phage Therapeutics (EPTs) to treat *P. aeruginosa* infections in bronchiectasis patients

Bronchiectasis is a chronic, inflammation-driven lung condition that is worsened by infection with *Pseudomonas aeruginosa*, leading to frequent and severe episodes called exacerbations. Treatment involves long courses of antibiotics, but these quickly become ineffective, leading to poor patient outcomes.

PhalconBio's Engineered Phage Therapeutics (EPTs) are engineered bacteriophages designed for precise targeting and the delivery of antibacterial effector proteins. These advanced bacteriophages not only eliminate harmful bacteria but also reprogram them to produce secondary precision microbials at the infection site. The treatment will be inhalable, keeping the procedure straightforward and familiar for patients.

To date, the company has prioritised wild-type bacteriophages with broad activity against pulmonary *P. aeruginosa* and is using these as scaffolds for engineering. Its engineering platform has already allowed PhalconBio to identify promising effector genes. With funding and support from PACE, PhalconBio will carry out hit validation assays for their scaffolds and effectors, followed by hit-to-lead studies evaluating EPT combinations, and *in vitro*, *ex vivo*, and *in vivo* assessments.

Success for the project will mean the development of a candidate Active Pharmaceutical Ingredient (API) for transition to drug development, within a two-year timeframe. This should lead to a new treatment for chronic pulmonary *P. aeruginosa* infections. As well as offering enhanced efficacy because of the dual mode of action, the treatment aims to reduce how often exacerbations occur, so patients can eventually stop using antibiotics long-term. This should improve their quality of life and help to combat antibiotic resistance globally.