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Growing UK Biotech company Phico Therapeutics moves forward global fight against antibiotic resistant 'superbugs'

Leading investors Guy Hands and Winton Ventures latest to back exciting UK biotechnology company, Phico Therapeutics.

Phico Therapeutics has successfully raised more than £3.5 M from new and existing investors to support the development of a ground-breaking new treatment to target antibiotic resistant infections in hospitals. The fund will be used to take the pioneering treatment PT3 into human clinical trials, bringing this much-needed new antimicrobial therapy closer to patients.

So called 'superbugs' are named as such owing to their ability to fend off antibiotic treatment. For over 100 years antibiotics have been the last line of defence against a range of illnesses but are increasingly failing to safeguard against a new generation of bugs able to combat such treatments.

A UK Government review of antimicrobial resistance carried out in May 2016 and chaired by Lord Jim O'Neill concluded that unless action is taken now, the death toll from antimicrobial resistant infections could, by 2050, be as high as one fatality every three seconds.

It is hoped PT3, which is part of Phico's innovative SASPject technology range of treatments, will be a key tool for the world's medical professionals as they look to find ways to address the growing risk that antimicrobial resistance poses to global health.

Guy Hands, the founder, Chairman and Chief Investment Officer of Terra Firma, one of Europe's leading private equity firms, and his wife, Julia Hands, have invested in Phico. In a joint statement they said:

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"Phico Therapeutics is doing vital work in the field of antibiotic resistance. There is lack of funding for the UK's biotech companies as they endeavour to find solutions for a major global problem. We are proud to be involved in this vital work and to support the scientists whose research in this area is of critical importance to future generations."

PT3 has been developed to target *Pseudomonas aeruginosa*, a bacterial species which exhibits one of the highest levels of inherent multi-drug resistance (MDR), with resistant pseudomonal infections causing a significant number of deaths each year.

Commenting on the potential of the PT3 treatment to address this global health risk, and the wider investment into anti-microbial resistance research CEO, Dr Heather Fairhead said:

"Phico's ground-breaking SASPject technology is being utilised to target a range of multidrug resistant (MDR) bacterial infections. Studies to date have been very encouraging and support the use of SASPjects as antibacterial drugs in areas of high unmet need and large market potential.

With the additional investment this research has garnered from our new and existing investors, we are now well placed for our lead product, PT3, to spearhead Phico's growing pipeline of treatments, with human trials expected in 2017."

Phico, working in conjunction with Greenwood Way Capital and other stakeholders has unlocked considerable investment for the sector from those looking to the UK as a potential growth area. David Harding of Winton Ventures highlighted the opportunity for domestic and overseas investors in UK biotechnology:

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"The sector in the UK can go from strength to strength. We have excellent science, a strong talent pool, and a supportive business environment. Phico presents a fantastic opportunity to help develop and bring to market cutting edge products that will make a real difference in the battle against antibiotic resistance"

END

Notes to Editors

Phico Therapeutics, founded in Cambridge by Dr Heather Fairhead, is built around the SASPject™ platform, which utilises a unique anti-bacterial protein, SASP, which targets and deactivates bacterial DNA stopping bacteria from metabolising or reproducing. Phico's goal is to advance the science of antibacterial therapy to help overcome the problem of bacterial resistance.

The PT3 treatment itself is designed for use within hospitals for treatment of '*Pseudomonas aeruginosa*' (PA) infections and delivered through Phico's unique SASPject technology. The PA infection can cause serious complications for patients who are fighting other illnesses, leading in many cases to serious conditions such as pneumonia, intra-abdominal sepsis and bacteraemia.

SASPject technology is designed so that a gene encoding SASP can be delivered to target bacteria by nano-delivery vehicles (NDVs) which are generated using a synthetic biologic approach with rationally designed genetic modules. The targeted bacteria then read and produce the antibiotic protein, SASP. SASP then binds to the bacteria's DNA and exerts its bactericidal effect.

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PT3 has been developed to specifically target the PA infection and can reduce the number of live PA cells by more than 99.9% in just 2 hours. Human trials are expected to start in 2017.

Further information on *Pseudomonas Aeruginosa*:

- *P. aeruginosa* is an opportunistic human pathogen characterised by an innate resistance to multiple antimicrobial agents achieved mainly by preventing antibiotics entering the bacterium or producing pumps that expel any antibiotics that do get in.
- *P. aeruginosa* represents a serious therapeutic challenge with significant morbidity and mortality, and are a significant problem for critically ill and immuno-compromised individuals, mechanically ventilated, neutropenic and burn patients.
- *P. aeruginosa* is frequently implicated in hospital-acquired infections, commonly causing pneumonia, intra-abdominal sepsis, complicated skin and soft tissues infections and complicated urinary tract infections and bacteraemia.

Further information on SASPject:

- The unique mode of action of SASP makes it unlikely the bacteria will be able to develop resistance to this anti-bacterial protein
- SASPject technology can be used to target any selected bacteria, individual or multiple bacterial species or genera, including those that are multi-antibiotic resistant.
- Unlike conventional antibiotics, SASPject has no effect on any bacteria other than those at which it is targeted. Normal skin and gut bacteria ("good bacteria") are unharmed.

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- SASPject target specificity prevents the release of toxins and other inflammatory cell components from non-target bacteria thus potentially minimising associated side effects.
- SASPject has the potential to limit the further spread of antibiotic resistance genes and to shrink the current antibiotic resistance pool

http://www.phicotx.co.uk

UK Government Review on Antimicrobial Resistance (p.72) https://amr-review.org/sites/default/files/160525_Final%20paper_with%20cover.pdf

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