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Pherecydes Pharma secures DGA funding for evaluating the use of bacteriophages against infected, antibiotic resistant burns



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French defence procurement agency invests EUR 900,000 towards a Pherecydes Pharma managed EUR 1.2-million project

Paris, France | Pherecydes Pharma, a biotechnology company specialized in the research and development of lytic bacteriophages for both therapeutic and diagnostic purposes, today announces that it has received funding of EUR 900,000 from France's General Directorate for Armaments (Direction Générale de l'Armement - DGA) to part-finance the PACOBURNS project. This project is set up to explore the possibility of using bacteriophages to combat bacterial infections that are resistant to antibiotics, especially skin infections.

The funds invested by the DGA fall within the framework of its RAPID program. The scheme supports dual innovation by small and medium-sized companies through providing financial assistance for projects that have great technological and commercial potential, are innovative in terms of industrial research, and have both military and civilian applications. The Institute of Genetics and Microbiology of the University of Paris XI and the Armed Forces Institute of Biomedical Research (Institut de Recherche Biomédicale des Armées - IRBA) are also involved in this project.

The PACOBURNS project aims to explore the role and potential of bacteriophages as a means of combating bacterial infections, especially against germs that are multi-resistant to antibiotics. It also involves promoting the use of phages as a credible alternative to antibiotics.

Using relevant animal models, PACOBURNS will make it possible to evaluate the therapeutic efficacy, safety and pharmacodynamics of two cocktails of bacteriophages. The first one is designed for infections caused by *Escherichia coli* type bacteria, and the second for infections caused by *Pseudomonas aeruginosa* species, and more specifically for treating open burn wounds infected by these resistant germs. Trials on humans are scheduled to begin early-mid 2013.

The project is targeting a market where antibiotics are becoming less effective. Resistance to antibiotics has become a major public health problem; at least 25,000 people die in Europe each year as a result of antibiotic-resistant infections.

This challenge is also of concern to the armed forces' health services, which are encountering increasing resistance to antibiotics in both military personnel and civilians, especially when it comes to the treatment of serious burns, as well as respiratory tract infections.

In the current state of pharmaceutical research, no new antibiotic is likely to reach the market over the next eight to ten years. It is against this background of therapeutic bottleneck that phagotherapy is emerging as a realistic alternative to current treatments that are losing their effectiveness.

“Despite optimizing the use of antibiotics, situations of therapeutic impasse are increasingly common in the case of multi-resistant bacteria,” explained Dr. Patrick Jault, head of the burns treatment center of Percy military hospital near Paris and the future coordinator of the multicenter trial in man. “It is thus essential to explore new avenues, and bacteriophages are one of the most promising. It is now crucial to evaluate their merits and their therapeutic potential in humans.”

Pherecydes Pharma is going to bring to the PACOBURNS project its expertise in the isolation and purification of lytic bacteriophages capable of destroying certain bacterial strains, including strains that have become resistant to antibiotics. Thanks to its large collections of bacteriophages (including the world's biggest collection of bacteriophages against *e.coli*), the company will concoct the two cocktails to be used in this project.

Pherecydes Pharma will also be responsible for the bioproduction of phages in GLP (Good Laboratory Practice) conditions, the finalization of the liquid formulas, and the initial in vitro tests. Preliminary tests conducted in rats demonstrated a complete absence of toxicity, perfect tolerability and 100 per cent efficacy.

“Pherecydes Pharma's participation in this innovative project is a major recognition not only of its technology but also of the therapeutic potential of its products,” said the chairman of Pherecydes Pharma, Jérôme Gabard. “Bacteriophages are a solution of the future for problems associated with bacterial resistance, and this project should help establish phagotherapy as both an alternative and a complement to antibiotic-based treatments.”

PACOBURNS will enable Pherecydes Pharma to speed up the development of its leading therapeutic products, in particular through facilitating their future evaluation in man by the major burns units of military and civilian hospitals. The company then intends to extend the topical application of its cocktails to other skin pathologies (such as varicose ulcers), after that to test new products administered by aerosol and lastly by the internal route.

As for the other partners in the project, the Institute of Genetics and Microbiology of the University of Paris XI will be responsible for electronic microscopy and bacteriophage sequencing, while IRBA will provide a mouse model adapted to the initial preclinical evaluations.

ACE Management, the majority shareholder in Pherecydes Pharma, has close ties with defence companies along

with defence-related projects and is supporting this promising innovative project. The second shareholder BioModeling Systems, has innovations that have helped Pherecydes Pharma participate in the PACOBURNS project.