



## WHY PHOENIX?

Solid organ transplantation is often the only option for people with end-stage organ failure. Although transplantation success rates have improved in recent years, life-long immunosuppression is required to prevent graft rejection. This medication regimen due to its associated risk of cancer, infections, and other complications, places physicians in a dilemma. They must balance the risk of rejection and graft loss with the risk of progression of infection and cancer.

PHOENIX is a Horizon Europe-funded research project offering a transformative approach to organ transplantation, by inducing transplant tolerance and eliminating lifelong immunosuppression.

**“ THIS NEXT-GENERATION IMMUNOTHERAPY HAS THE POTENTIAL TO TRANSFORM THE LIVES OF MILLIONS OF PEOPLE WORLDWIDE BY MINIMISING THE RISKS ASSOCIATED WITH ORGAN TRANSPLANTATION. ”**

## WHY WE DO IT

PHOENIX is crucial as it addresses the global challenge of transplant graft survival. Sadly, about 40% of transplant patients pass away within 10 years, and at least 15% experience their transplanted organ failing every decade<sup>1</sup>. Improving graft survival will significantly enhance patients' quality of life, lower medical costs, and ultimately save more lives.

PHOENIX's novel nano-immunotherapy consists of nanoparticles coated with protein complexes that target the organ recipient's anti-graft immune cells and re-program them into regulatory cells, inducing a tolerogenic environment without the negative systemic effects. This therapy will be preclinically validated in kidney and liver transplants, in two species, to provide robust evidence for future clinical trials.

The goal of the PHOENIX project is to demonstrate that our nano-therapy helps develop transplant tolerance without impairing the host's immune responses to vaccines or infections.

## WHAT WE DO

Our project is developing a nanomedicine to prevent graft rejection and induce transplant tolerance *without* compromising the host's immunity to infections and cancer. Our nanotechnology-based therapy builds on breakthrough research that has shown promising results in reprogramming host T cells that attack transplanted organs.

PHOENIX will:

- Enable successful organ transplantation without life-long immunosuppression, benefiting millions of people, healthcare systems, and society as a whole.
- Reduce the disease burden on people with organ transplants, eliminating the need for second transplants and reducing waiting times for new transplant patients.
- Eliminate the need for life-long immunosuppression, avoiding its toxicity, allowing organ recipients to live longer with a higher quality of life.
- Reduce the socioeconomic burden on healthcare systems.



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# CHANGING THE FUTURE OF ORGAN TRANSPLANTATION

PROJECT FACT SHEET | 2023

**THE PHOENIX TEAM IS A DYNAMIC ALLIANCE OF LEADERS FROM FOUR EUROPEAN COUNTRIES, UNITING SCIENTISTS, CLINICIANS, INDUSTRY PROFESSIONALS, AND ADMINISTRATIVE SPECIALISTS TO ACCELERATE PROGRESS AND REACH OUR AMBITIOUS GOALS OF REVOLUTIONISING TRANSPLANT MEDICINE.**

The Istituto di Recerche Farmacologiche Mario Negri group is a world leader in clinical nephrology and transplant immunology, from complex small animal models to human trials. Giuseppe Remuzzi is a key opinion leader for immunological pathways of early and late graft rejection. During the last 20 years, the group has been engaged in the definition of novel therapies to induce tolerance in experimental transplant models and transplant patients.



The Santamaria team at Fundació Clínic per a la Recerca Biomèdica is highly skilled in the areas of nanotechnology, nanoimmunology, and immune-protein engineering, with a focus on chronic inflammatory conditions, including autoimmune diseases. Santamaria discovered MHC-based nanotherapies and has pioneered all the know-how related to these compounds, from design, engineering and manufacturing, to safety, mechanisms of action and clinical indications.



Centre Hospitalier Universitaire de Rennes (CHUR) clinical teams are involved in more than 1,728 clinical studies. Prof. Boudjema's laboratory at CHUR is a pioneer in solid organ transplant medicine, including the invention of the auxiliary liver transplant technique and over 1,000 liver transplants to date. The group provides unique large-animal hepatology expertise. This represents an essential next step towards translation, namely the testing of nanotherapies in larger animals.



Pintail Limited is an Irish SME specialising in supporting scientific research through effective administration, high-impact dissemination and informed exploitation planning. As a partner in PHOENIX, Pintail will deliver expert project management, administrative and dissemination support.



## MEDIA & FIND OUT MORE

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