

Immunethep awarded £1M PACE funding to advance monoclonal antibodies that restore the ability to control bacterial infection

- Funding for development of monoclonal antibodies targeting infections caused by *Escherichia coli* and *Klebsiella pneumoniae*
- This immunotherapy allows the immune system to restore its ability to control bacterial infections, without inducing antimicrobial resistance

Immunethep, S.A. (Immunethep), a company focused on developing immunotherapies to combat bacterial infections, today announced it has been awarded funding by [PACE](#) (Pathways to Antimicrobial Clinical Efficacy), a pioneering initiative focused on early-stage antimicrobial drug and diagnostic discovery.

The funding will support the continued development of Immunethep's monoclonal antibodies targeting bacterial glyceraldehyde-3-phosphate dehydrogenase (bGAPDH) as a single immunotherapy to treat infections caused by *Escherichia coli* and *Klebsiella pneumoniae*.

Antimicrobial resistance is a major threat to global public health. Immunethep has discovered that the failure to fight off an infection can occur because bacteria are able to dampen down the body's immune response, using a previously unknown mechanism conserved among various bacteria, including *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella pneumoniae*, and members of *Streptococcus*. Studies at Immunethep have shown that bacteria achieve this by releasing bGAPDH, which shifts the host's immune system towards an anti-inflammatory (and therefore more bacteria-susceptible) state.

The Immunethep team has demonstrated that antibody-mediated neutralisation of bGAPDH is highly effective in preventing infections by the aforementioned bacteria in physiological models of infection and in human cord blood cells. The company has already identified 16 monoclonal antibodies targeting bGAPDH from *E. coli* and *K. pneumoniae*, with consistent binding affinities.

With funding and close collaborative support from PACE, the four best antibodies will be selected for efficacy and safety studies. At least one of these antibodies will then be chosen for humanisation and subsequent development through to clinical studies in humans.

Success in this project will result in an antibody-based treatment that can be administered to patients at greater risk of infection or those receiving medical interventions. A single dose of the treatment should be effective against both *E. coli* and *K. pneumoniae*, with no associated toxicity, and will not result in antimicrobial resistance.

"We are very pleased to receive this support from PACE, which will allow us to significantly advance the development of our monoclonal antibodies. We believe this innovative approach represents a significant advancement in the fight against life-threatening bacterial infections. By targeting a conserved mechanism that bacteria use to avoid our immune system, control of infection can be achieved without inducing any resistance, offering a promising alternative to conventional antibiotics. This project underscores our commitment to developing science-

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driven solutions that address urgent public health challenges.” commented Pedro Madureira (Chief Scientific Officer of Immunetheap).

Dr Clive Mason, PACE Programme Director, said: “Immunetheap’s platform offers a promising strategy to address the growing threat posed by difficult-to-treat infections. By supporting companies like Immunetheap, we aim to accelerate the development of innovative solutions that have the potential to improve patient outcomes.”

About Immunetheap

Immunetheap, S.A. is a biotechnology company founded in 2013 dedicated to the development of anti-bacterial immunotherapies to tackle Antimicrobial Resistance (AMR). Immunetheap adopts a completely new approach to this problem, based on the discovery of a virulence mechanism that is shared by the most relevant bacteria that cause life-threatening infections.

Immunetheap has two lines of products in development addressing infections caused by various bacteria, including *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella pneumoniae*, and *Streptococcus* species. A line of preventive vaccines, and a line of antibody-based therapeutics that is an alternative to antibiotics and has already achieved important milestones in its development.

About PACE

PACE is a new and comprehensive approach to tackling one of the world’s most complex health challenges: antimicrobial resistance (AMR). PACE works with the AMR community and offers funding, support, and advice to help progress early-stage antimicrobial drug and diagnostic projects with greater speed and confidence – giving the best AMR innovations the greatest chance of success.

PACE selects, invests in and supports projects that address the world’s most threatening pathogens. In doing so, it will deliver innovations for onward development and investment, moving them closer to clinical trials. Working together with the brightest and best, PACE will help tackle this rising threat to global health. PACE was founded in 2023 by LifeArc, Innovate UK and Medicines Discovery Catapult, with a £30 million programme of funding and support to be deployed over five years.