

Press Release

September 24, 2026 Page 1 | 3

EU funds phage therapy with €15 million

Using Viruses to Fight Bacteria: New Clinical Study Explores an Alternative to Antibiotics

Bacteria are becoming increasingly resistant to antibiotics. This is particularly problematic in the context of recurrent urinary tract infections. One alternative is treatment with viruses that exclusively infect bacteria, known as phages. This is where the REPhRAME research project comes in. A new study will investigate whether combining phage therapy with restoration of the gut microbiome can help prevent recurrent urinary tract infections. The project is funded by the European Parliament and supported by the Council of the European Union.

Recurrent urinary tract infections (UTIs) are among the most common bacterial infections worldwide. More than 400 million people develop a UTI each year, and in 30 to 50 percent of cases, the infection recurs. As standard antibiotic treatments can contribute to the development of resistance, many patients find themselves caught in a cycle of infection, antibiotic treatment and reinfection, without a lasting solution. The REPhRAME research project aims to reduce antibiotic use and prevent infections from recurring. Funded with €15 million through the European research and innovation programme Horizon Europe, the project will run for five years.

Project objective: Breaking the cycle of infection and antibiotic use

REPhRAME relies on phages because, unlike antibiotics, they are highly specific. They target only the bacteria responsible for infection, leaving much of the natural microbiota unaffected. In a randomised clinical trial led by University Hospital Frankfurt, a two-step phage therapy approach will be evaluated for the first time. First, phages—viruses that selectively kill bacteria—will be used to target the pathogens. This will be followed by restoration of the gut microbiome to help prevent recurrent infections.

The first treatment step uses a proprietary, CRISPR-enabled phage cocktail designed to target certain strains of the gut bacterium *Escherichia coli*, the most common cause of urinary tract infections, while reducing the emergence of new resistance.

The second step focuses on restoring the gut microbiome. INTESTIFIX 001, a product of the Cologne Microbiota Bank, transfers gut bacteria from healthy donors to restore the natural balance of the gut microbiota. The goal is to provide long-term protection against recurrent infections.

Clinical trial paves the way for phage therapy in Europe

At the heart of the project is a multicentre clinical trial designed to systematically assess the safety and efficacy of phage therapy in Europe. Within the international research consortium, three approaches will be compared: phage therapy alone, phage therapy combined with antibiotics, and phage therapy combined with microbiome restoration.

“Recurrent urinary tract infections place a considerable burden on patients and healthcare systems, yet existing treatment options simply do not go far enough for many affected individuals,” says Prof. Dr. Maria J.G.T. Vehreschild, Head of the Department of Infectious Diseases at University Hospital Frankfurt and overall coordinator of the project. “REPhRAME aims to advance phage therapy from a promising research concept to a clinically validated treatment option—with robust data on safety, efficacy and implementation. In doing so, we hope to lay the foundation for integrating phage therapy into routine clinical practice across Europe in the future.”

Dr. Tanja Roßmanith, Head of the Proof-of-Concept & Clinical Trials Innovation Area at Fraunhofer ITMP, adds: “This exciting project will provide robust data on the safety and efficacy of phage therapy in the regulated setting of a clinical trial—data that will ultimately benefit patients.”

About REPhRAME

The REPhRAME research project stands for “Recurrent Urinary Tract Infection: Efficacy and Safety of Phage Therapy and Microbiota Transfer.” The project is funded by Horizon Europe. It has the potential to substantially reduce antibiotic use, lower the rate of recurrent infections and sustainably improve the quality of life of many patients. At the same time, REPhRAME will establish the scientific and regulatory foundations needed to bring phage-based therapies into broader clinical practice in the future. The project consortium consists of 16 partners across eight European countries. Together, they combine expertise in infectious diseases, clinical trials, phage therapy, microbiome research, microbiology, bioinformatics, regulatory science, drug development and patient-centred research. [REPhRAME](#)

The project partners are:

SNIPR Biome (Denmark)
Fraunhofer-Gesellschaft, Fraunhofer ITMP (Germany)
German Center for Infection Research (Germany)
Hannover Medical School (Germany)
LINQ management GmbH (Germany)
University Hospital Cologne (Germany)
HUN-REN Biological Research Centre (Hungary)
Riga Stradiņš University (Latvia)
Leiden University Medical Center (the Netherlands)
Jafra (Slovenia)
Swiss Institute of Bioinformatics (Switzerland)
University of Bern (Switzerland)
Balgrist University Hospital, University of Zurich (Switzerland)
University of Leicester (UK)
University of Reading (UK)

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