PRESS RELEASE

KOMTESZ KFT

The Project Has Commenced
"Optimisation and Preclinical Validation of Supramolecular Lamellin Peptides for Antimicrobial Applications"
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KOMTESZ Kommunikációs és Technikai Szolgáltató Korlátolt Felelősségű Társaság (KOMTESZ Kft.) has been awarded a non-repayable grant of HUF 605.681 million from the National Research, Development and Innovation Fund under the LIFE SCIENCES CATALYST PROGRAMME – FROM TARGET TO PROOF OF CONCEPT (TARGET TO POC) call for proposals.

The project commenced on 1 September 2026 and is scheduled for completion on 31 August 2029. Its aim is to develop a new family of antimicrobial peptides based on supramolecular organisation, known as lamellin peptides, which may offer a novel approach to combating multidrug-resistant bacteria. The global rise in antibiotic resistance is one of the most serious public health challenges worldwide, creating an urgent need for alternative therapeutic approaches that differ from conventional methods based on targeted enzyme inhibition.

The distinctive feature of lamellin peptides is that they disrupt bacterial cell membranes through a physical mechanism. Rather than inhibiting a single protein or biochemical process, they attach to the bacterial surface, become activated there and form self-assembling lamellar structures that destabilise the membranes of pathogens. This "mechanical" mode of action is less likely to lead to the development of resistance, representing a new strategic direction in antimicrobial research.

The molecules are currently at Technology Readiness Level (TRL) 2. The planned 36-month development programme aims to advance the lamellin platform to TRL 4, corresponding to a functional laboratory prototype. KOMTESZ Kft. is working with HUN-REN Research Centre for Natural Sciences, HUN-REN Biological Research Centre, Szeged, Toxi-Coop Zrt. and Ladon Therapeutics Kft. to further develop the starting compounds for use against multidrug-resistant bacterial strains.

In collaboration with HUN-REN Research Centre for Natural Sciences, the physical and structural stability of the resulting compounds will be investigated, together with the relationship between structural order and biological activity. The most promising lamellin candidates will undergo preclinical validation, including assessments of safety, pharmacokinetic properties, tissue distribution and toxicity.

NEMZETI KUTATÁSI, FEJLESZTÉSI ÉS INNOVÁCIÓS HIVATAL

PROJECT FUNDED BY THE NRDI FUND

The expected outcome is an improved prototype demonstrating antibacterial efficacy, enhanced structural stability and a favourable toxicological profile. Patent applications are planned for the molecules selected during the project.

The project is expected to have a twofold long-term impact. Firstly, it may contribute to the fight against resistant pathogens by providing a new antimicrobial platform with a physical mode of action. Secondly, it may strengthen Hungarian innovation in peptide-based biotechnology while promoting knowledge transfer between research institutions and industry.

The grant will enable the targeted optimisation of the starting molecules, the development of laboratory prototypes and their preclinical validation.

Gödöllő, 25 September 2026

Nemzeti Kutatási, Fejlesztési és Innovációs Hivatal

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