**NOMADS UAB, Lithuania Published a Milestone Research Paper Describing its Chimeric Bacteriocins for Control of Multidrug-Resistant *Pseudomonas***

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NOMADS UAB, Lithuania, NOMAD Bioscience's wholly owned subsidiary, announces publication in the Nature group journal Scientific Reports (Š. Paškevičius, V. Dapkutė, A. Misiūnas, M. Balzaris, P. Thommes, A. Sattar, Y. Gleba and A. Ražanskienė, "Chimeric bacteriocin S5-PmnH engineered by domain swapping efficiently controls *Pseudomonas aeruginosa* infection in murine keratitis and lung models" Sci Rep. 2022 April 19; 12:5865. doi: 10.1038/s41598-022-09865-8) of a collaborative research paper describing successful engineering of broadly active chimeric bacteriocins by using domain swapping. The best chimeric molecule, Nomad's lead product candidate, has broader antimicrobial spectra against *Pseudomonas aeruginosa* than the natural bacteriocins, and it provides an efficient control of infection in validated murine keratitis and lung infection models.

The emergence, persistence and spread of antibiotic-resistant human pathogenic bacteria constitutes a growing global health crisis. Drug-resistant strains of gram-negative bacteria, such as *Pseudomonas aeruginosa*, are especially dangerous and the medical and economic burden they impose underscore the critical need for finding new antimicrobials. This bacterium is one of the six pathogens causing hospital ESKAPEE infections, which readily develop resistance to antibiotics. WHO's list of bacteria for which new antibiotics are urgently needed identified carbapenem-resistant *Pseudomonas aeruginosa* as a problem of critical importance. NOMADS scientists investigated Pyocins, non-antibiotic antimicrobial proteins (bacteriocins) produced by certain *Pseudomonas* strains, as potential pathogen control agents but didn't find promising drug candidates among natural bacteriocins. The results published in Nature Scientific have found that domain swapping of natural *Pseudomonas* bacteriocins of porin type, when carried out between phylogenetically related molecules with similar mechanism of activity, allows generation of highly active molecules with broader spectrum of activity, in part through abolishing resistance due to the presence of immunity proteins. The most broadly active chimera engineered in this study, S5-PmnH, exhibits excellent control of *Pseudomonas aeruginosa* infection in validated murine keratitis and lung infection models. The invention has also been filed as a patent application.

**About NOMADS UAB.** Nomads UAB is a biotechnology company developing novel non-antibiotic antibacterials, including bacteriocins and endolysins, to be used as pharmaceuticals, food additives and medical devices.

**About NOMAD Bioscience GmbH.** Nomad Bioscience GmbH, parent company of NOMADS, is a plant biotechnology company developing plant expression systems with application to a broad range of agricultural and pharmaceutical biotechnology products. Corporate offices are headquartered in Munich, Germany and the Company's Research division is located in Halle, Germany.