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Antimicrobial peptides as novel alternative agents for treatment of infectious diseases

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Bacterial resistance against antibiotic treatment has become a major threat to public health. Antimicrobial peptides (AMPs) have emerged as promising alternative agents for treatment of infectious diseases. Pergamum is a biopharmaceutical company specialized in the development of therapeutic AMPs for local application in infections and wounds. Pergamum has conducted extensive nonclinical and clinical characterization of novel peptides derived from human endogenous proteins as well as marine environment, for their use as anti-infective agents.

Synthetic peptides sequentially derived from the AMP centrocin 1, isolated from the green sea urchin, show marked microbicidal and anti-inflammatory properties. Centrocin-1-related peptides also significantly reduced bacterial counts in two different animal models of infected wounds, while *Staphylococcus aureus* and methicillin-resistant *S. aureus* (MRSA) failed to develop resistance against these peptides under continued selection pressure.

DPK-060 is a chemically synthesized AMP sequentially derived from human kininogen. DPK-060 has a broad antimicrobial activity against gram-positive and gram-negative bacteria, including the strains resistant to conventional antibiotic therapy. In the first phase IIa clinical trial, it was demonstrated that topical application of DPK-060 1% ointment onto eczematous lesions in patients with atopic dermatitis was safe and tolerable. Moreover, DPK-060 was found to reduce the microbial density significantly, as compared to placebo. DPK-060 has also been evaluated for the treatment of acute external otitis. The clinical cure in the group receiving DPK-060 was higher, compared to placebo, and similar or higher compared to the previously reported efficacy evaluation for local antibiotic therapy in the treatment of external otitis.

Biography

Margit Mahlapuu completed her Ph.D. in Molecular and Cell Biology, University of Gothenburg, in 2001. After post-doctoral position at AstraZeneca, Sweden, she has been appointed as project director and chief scientific officer (CSO) of R&D function of several small and mid-sized biotech companies. She has published 30 papers in reputed journals and is inventor of 5 approved patents/pending patent applications. At present, she is CSO of Pergamum AB, and associate Professor in Medicine at the Sahlgrenska Academy, University of Gothenburg.

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