



MARKET CHALLENGES

The emerging problem of antibiotic resistance is a serious threat to global public health. The situation is aggravated by a substantial decline in the research and development of antibacterial agents. Hence, very few new antibacterial classes are brought to the market when older classes lose their efficacy. Antimicrobial peptides appear as a promising solution for this shortfall; yet, they still meet serious issues impairing their development, such as production costs and poor pharmacokinetics.



INNOVATIVE SOLUTIONS

Temporins are natural antimicrobial peptides identified in amphibians with a broad spectrum of activity against many pathogens. The present invention relates to a range of antimicrobial peptides derived from temporin SHa (isolated from *Pelophylax saharica* frog skin) and exhibiting enhanced antibacterial, antiparasite and antifungal activity. Furthermore, they present a natural resistance to biodegradation due to their specific structure.



SUGGESTED APPLICATIONS

- Therapeutic alternative for the treatment of multidrug-resistant infections
- Treatment of human and animal *Leishmaniasis*
- Anti-bacterial coating

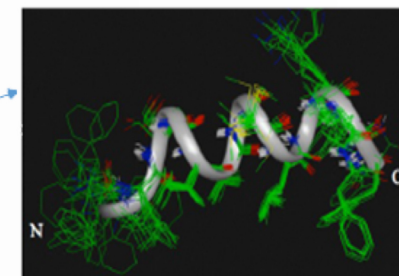


DEVELOPMENT STATUS

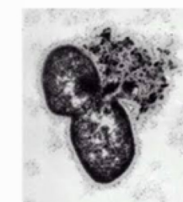
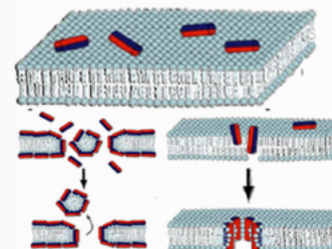
The activity of temporin SHa analogs has been tested over many known strains (*E. coli*, *P. aeruginosa*, *Acinetobacter baumannii*, *Klebsiella pneumoniae*, *E. faecalis*, multi-resistant *Staphylococcus aureus*, *C. albicans*, *Leishmania major*, etc.). Cytotoxicity was evaluated *in vitro* on THP-1 human monocytic cell lines. Grafting tests onto solid material showed that these peptides kept their antimicrobial properties when immobilized. SATT Lutech is funding a development program to get *in vivo* proof of concept (toxicity and efficacy) in murine models of two different infections (sepsis and impetigo) by two administration methods (i.v. injection and topical application).



Temporin-SHa, isolated from the frog *Pelophylax saharica*.



Cationic peptide



Membrane lytic activity of the cationic peptide



COMPETITIVE ADVANTAGES

- Short peptides
- Innovative mechanism of action limiting the development of microbial resistance
- Broad spectrum activity :
 - Gram positive and gram negative bacteria
 - Yeasts
 - Multiresistant strains and *Leishmania* parasites

