

Abstract

Antimicrobial peptides (AMPs) are short amino acid sequences synthesized by a spectrum of organisms as a defence mechanism against bacteria. AMPs are divided into two groups based on their mechanisms of action – membrane disruptive AMPs and AMPs with an intracellular target. Bacteria themselves can also produce these toxins that help them compete with other strains within the same ecological niche.

One such a peptide is sublancin – an AMP secreted by the soil bacterium *Bacillus subtilis*. Sublancin is bactericidal against Gram-positive bacteria. Although the exact mechanism of action of sublancin against bacteria is not yet well understood, it is known to target intracellular processes. It was proposed that sublancin could have a negative impact on DNA replication.

This bachelor thesis first provides a brief description of DNA replication and then summarizes current knowledge about AMPs that target membrane and AMPs with intracellular targets. Detailed attention is then focused on AMPs that affect nucleic acid synthesis, a mechanism also proposed for sublancin. The final part of this work describes sublancin – its expression, structure, and possible mechanism(s) of action.

Key words: antimicrobial peptide, interspecies competition, sublancin, *Bacillus subtilis*, DNA replication