

ANTIMICROBIAL PEPTIDES AS PART OF THE TICK DEFENSIVE ARMAMENTARIUM.

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Ticks are obligatory blood-sucking arthropods being one of the most important vectors of human and animal diseases. We have been studying two different aspects of the immune system of the cattle tick *Boophilus microplus*: *i.* phagocytosis and production of reactive oxygen species by hemocytes after microbial challenge; and *ii.* antimicrobial peptides (AMPs) isolated from the gut, eggs, and hemolymph. We have chosen two of them for studies of structure-activity and mechanism of action. One of these peptides is a proteolytic product of the bovine hemoglobin α -chain, which is able to disrupt the microbial membrane. A cysteine-rich peptide, named microplusin, was isolated from the cell-free hemolymph and eggs. The recombinant peptide showed bacteriostatic and fungistatic activities. Interestingly, this peptide shows a copper-chelating property that is important for its antibacterial activity. In addition, we are investigating the pathogen-vector relationship using an immunological approach. Several transcripts related to the tick immune system have been already identified in an embryonic cell line of *B. microplus*, such as AMPs, proteinases, and proteinase inhibitors. The gene expression profile of the AMPs transcripts as well as their proteic products are being evaluated in cells challenged with different pathogens. Moreover, with the aim of determining the relevance of some of these genes to the tick immune system, some of them will be silenced by RNAi.

Key words: immunity, antimicrobial peptides, tick