ANTIMICROBIAL PEPTIDES ARE LYTIC TO *ACANTHAMOEBA CASTELLANII*

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Acanthamoeba species are an important cause of keratitis, mainly in contact lens wearers. Because of its poor response to conventional antimicrobial agents at concentrations tolerated by the eye the outcome is generally severe visual impairment. We evaluated the *in vitro* efficacy of two classes of antimicrobial peptides against *Acanthamoeba castellani* trophozoites compared to rabbit corneal epithelial (SIRC) cells. We used Gomesin, a β-hairpin peptide, and peptides derived from the N-terminus of trialysin (P5 and P6), which form amphipathic α-helix structures. Gomesin was more effective in promoting amoeba (LC_{50} = 15 µM) than SIRC cells permeabilization (LC_{50} = 25 µM), resisting proteolytic degradation. It was less effective in preventing growth because its action decreased in amoeba growth medium. P5 and P6 peptides promoted amoeba permeabilization at higher concentrations (LC_{50} = 36 µM and 40 µM, respectively) and were very sensitive to proteases secreted by amoeba. Nevertheless, peptide P5 prevented amoeba growth at concentrations as low as 5 µM. Addition of PMSF increased P5 and P6 lytic efficiency. We concluded that although ß-hairpin peptides are effective to kill amoeba at safe concentrations, their effect depends on the culture medium, which increases parasite resistance to lysis. In contrast, amphiphathic α-helix peptides are effective in preventing growth but their action would depend on the susceptibility to amoeba proteases.