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Service (sector) Cornea and External Disease N° CEP

**In vitro corneal epithelial toxicity and antimicrobial activity of gomesin, a cationic antimicrobial peptide, on *Acanthamoeba Castellanii*.**

Sacramento RS; Freitas D; Martins RM; Foronda A; Alvarenga L; Dobroff AS; da Cunha JPC; Rodrigues EG; Miranda A; Schenkman S **Purpose:** To evaluate the *in vitro* antimicrobial activity against *Acanthamoeba castellanii* of gomesin as well as the effect of gomesin on rabbit corneal epithelial cells (SIRC).

**Methods:** Amoebicidal activity was investigated after 1h and 4h incubation of *A.castellanii* trophozoites (ATCC 30011) with different concentrations of gomesin. The effects on parasite viability were monitored by Trypan Blue exclusion test and flow cytometry for propidium iodide (PI) fluorescence. Cell viability was measured in SIRC cells (ATCC CCL60) treated with gomesin using the MTT colorimetric assay.

**Results:** Gomesin exhibited a dose- and time-dependent activity against *A.castellanii* trophozoites. It caused rapid parasite death, since high propidium iodide (PI) uptake was shown after 1h incubation. After 4 hours of exposure the mean LC50 values obtained for parasites were 12,5 mM. At this concentration, gomesin was found to be non-toxic to rabbit corneal epithelial cells.

**Conclusions:** The results indicated that the toxic effect of gomesin on corneal epithelial cells was minimal when compared with its effect on parasites. Gomesin may have a use in *Acanthamoeba* infections and deserves evaluation in this role.