Immunomodulatory effects of a scorpion-venom derived antimicrobial peptide during the interaction of *Cryptococcus neoformans* with murine macrophages and dendritic cells

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OBJECTIVE

Our aims were to analyze the immunomodulatory effects of a scorpion-venom derived antimicrobial peptide (AMP) ToAP2 on bone marrow-derived murine dendritic cells (BMDCs) and macrophages (GM-BMM) as well as during the interaction of these cells with *Cryptococcus neoformans*.

METHODS

RESULTS

Figure 1. Cytokines/Chemokines profile after 24h stimulation with different concentrations of the peptide ToAP2.

Figure 2. Infection of GM-CSF stimulated BMM with yeasts of *C. neoformans* H99 (MOI 2), previously stimulated with different doses of the peptide ToAP2 one hour before the infection.

Figure 3. Infection of GM-CSF stimulated BMDC with yeasts of *C. neoformans* H99 (MOI 2), previously stimulated with different doses of the peptide ToAP2 one hour before the infection.

CONCLUSIONS

Although ToAP2 presented cytotoxicity in concentrations above 2.5 μ M, cytokine/chemokine analysis of ToAP2-stimulated BMDCs and GM-BMM revealed an immunomodulatory effect below this concentration. Furthermore, pre-incubation of BMDCs and GM-BMM with TOAP 2 also seems to increase their percentage of phagocytosis and phagocytic index. Thus, AMPs can be used in anti-fungal therapy acting not only as fungicidal/fungistatic molecules but also by helping the immune system to deal with fungal infections.

Further characterization of ToAP2 immunomodulatory activity will help to better evaluate the full potential of AMPs in antifungal therapy.

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