INHIBITORY EFFECT OF DEFENSIN RsAFP2 IN THE GROWTH OF DIFFERENT *CANDIDA* ISOLATES IN *VITRO* AND IN THE DISSEMINATION OF *C. ALBICANS* IN MICE.

Tavares PM[1], Thevissen K[2], Cammue BPA[2] and François IEJA[2], Rozental S[3], Taborda CP[4], Marques AF[4], Rodrigues ML[1], Nimrichter L[1*]

[1]Laboratorio de Estudos Integrados em Bioquimica Microbiana, IMPPG - UFRJ, RJ, Brazil; [2]CMPG, Katholieke Universiteit Leuven, Heverlee, Belgium; [3]IBCCF-UFRJ, RJ, Brazil; [4]Institute of Biomedical Sciences, USP, SP, Brazil.

Candidiasis is the most frequent fungal disease. Resistance to current anti-*Candida* drugs reveals an urgent search for antifungal agents and targets. The antifungal peptide RsAFP2, from radish seeds, interacts with the fungal glycosphingolipids glucosylceramide (GlcCer), culminating in fungal death. We evaluate the antifungal effect of the defensin RsAFP2 against different *Candida* species. The activity of RsAFP2 was demonstrated in *in vitro* tests of susceptibility. GlcCer expression in each isolate was analyzed by Thin-layer chromatography after extraction of lipids with organic solvents. Except for *C. glabrata*, which did not express GlcCer, all species tested were susceptible to RsAFP2 in vitro. Pre-treatment of the peptide with animal serum showed that RsAFP2 retained its antifungal activity. RsAFP2 toxicity to human cells was evaluated by measurement of lactate-dehydrogenase release. No toxicity was observed with high concentrations of RsAFP2. Defensin-treated fungi presented considerable morphological changes analyzed by transmission electron microscopy. RsAFP2 controlled *C. albicans* dissemination in a murine candidiasis model. We concluded that RsAFP2, which targets GlcCer in different Candida species, is a promising anti-Candida peptide that controls fungal growth *in vitro* and *in vivo*.