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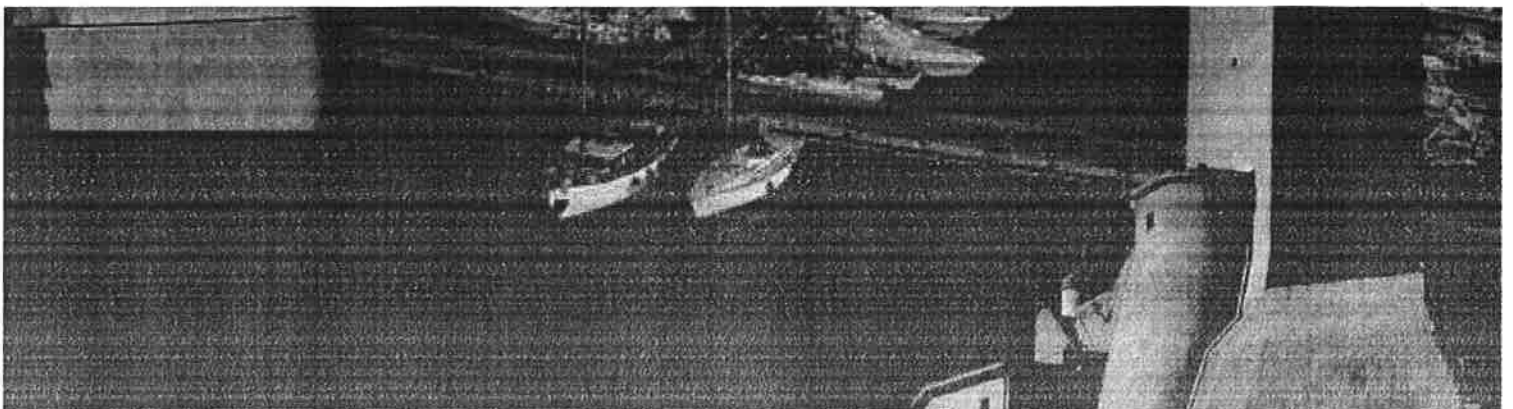
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## C20

**A SYNTHETIC KILLER PEPTIDE  
IMPAIRS *CANDIDA ALBICANS*  
BIOFILM FORMATION AND  
PERSISTENCE IN VITRO**

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**Introduction:** *Candida* spp. colonize human skin and mucosae of healthy subjects, behaving as harmless commensals. Nevertheless, in susceptible patients, they behave as opportunistic pathogens also due to their capacity to form biofilm on host mucosae or medical device surfaces. When embedded in a biofilm, *Candida* exhibits enhanced tolerance to common disinfectants and most antifungals, including azoles. Thus, there is an urgent need to identify novel therapeutic molecules. Recently, several antibody-derived peptides proved to exert antimicrobial, antiviral, immunomodulatory and antitumor activity *in vitro* and *in vivo*. The aim of this study was to investigate the effects of a synthetic killer peptide (KP) on the formation and persistence of *Candida* biofilm.

**Materials and Methods:** *C. albicans* reference strain SC5314, two fluconazole-resistant and two fluconazole-susceptible *C. albicans* isolates were used. The activity of KP (AKVTMTCSAS) together with a scrambled peptide (negative control), was tested against *Candida* biofilms at different stages of development by microscopy, crystal violet and tetrazolium salt reduction assays. qRT-PCR was used to evaluate the effect of KP on biofilm related genes.

**Results:** KP strongly influenced *C. albicans* capacity of to form biofilm and significantly impaired mature biofilm. In particular, KP treatment induced *Candida* oxidative stress response, altered fungal cell membrane permeability and markedly

impaired biofilm-related gene expression. Similar inhibitory effects were observed against all the yeast strains tested, irrespective of their resistance or susceptibility to fluconazole. Interestingly, the KP-mediated inhibitory effect was confirmed against a catheter-associated *C. albicans* biofilm.

**Conclusions:** These results provide the first evidence for the efficacy of KP against *C. albicans* biofilm, suggesting that this peptide may represent a novel potential molecule for treatment and prevention of biofilm-related *C. albicans* infections.