

0970 Factors Mediating the Sensitivity of Candidal Biofilms to Nystatin

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Although candidal biofilms are characterized by recalcitrance to antifungals, the mechanisms that entail this phenomenon are ill understood. Objectives: the aim of this study was to explore the role of extracellular polymeric substances (EPS), dietary sugars (glucose and galactose) and mixed saliva on biofilm-induced resistance of *Candida albicans* isolate 192887g to the commonly used antifungal - nystatin. Methods: unstimulated, mixed saliva was collected by expectoration from five healthy volunteers and clarified by spinning immediately before use. The biofilms were grown in wells of polystyrene, flat-bottom 96-well microtiter plates (IWAKI, Tokyo, Japan) over a period of 96 hrs and harvested periodically. ATP bioluminescence assay was used to determine the survival rate of biofilm cells exposed (test) or unexposed (control) to nystatin (Sigma, MO, USA). The EPS content of candidal biofilms was evaluated using confocal scanning laser microscopy (CSLM) after staining the biofilms with ECA (Vector Laboratories, Burlingame, CA, USA) and concanavalin A (Molecular Probes, Eugene, OR). Results: the intact, sessile (biofilm) cells were the most nystatin-resistant, followed by either unwashed or washed resuspended, and planktonic cells ($P < 0.05$). Biofilm resistance to nystatin developed progressively, in a temporal manner, regardless of the nature of the sugar in the incubating medium. Compared with glucose-grown biofilms, those grown in galactose were significantly more resistant to nystatin ($P < 0.05$). However, CSLM did not reveal a significant difference in the EPS levels of biofilms grown in the two sugars. In addition, the presence of saliva in the growth medium had no effect on the sensitivity of *Candida* biofilms to nystatin. Conclusion: the resistance of candidal biofilms to nystatin is modulated by dietary sugars and is unlikely to be affected by EPS. Further gene expression studies are required to clarify these issues. (Supported by the Committee for Research and Conference Grants of HKU).

[Seq #107 - Candida](#)

10:15 AM-11:30 AM, Thursday, 11 March 2004 Hawaii Convention Center Exhibit Hall 1-2

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