

Oral Bacteria Modulate Candida Biofilm Formation

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Objective: To evaluate the effect of four, aerobic and anaerobic oral commensal bacterial species on *Candida albicans* biofilm development. Methods: A single isolate of *C. albicans* 2560g, and two aerobes, *Pseudomonas aeruginosa*, *Escherichia coli*, and two anaerobes, *Prevotella nigrescens*, and *Actinomyces israelii* were used. Biofilm formation was quantified as the ability of *Candida* to grow in sessile form on polystyrene plastic surfaces pre-exposed to the foregoing bacteria. Scanning electron microscopy was used to confirm and visualise biofilm formation, and a viable cell count, together with a XTT reduction assay were used to quantify the sessile growth. Results: The latter two methods quantified well the biofilm growth with good correlation ($r=0.667$, $P<0.001$). A significant reduction in viability of *C. albicans* biofilm mass was noted when exposed to polystyrene plastic substrates coated with either *P. aeruginosa*, *E. coli*, *P. nigrescens* or *A. israelii* ($P<0.05$). Differing concentrations of bacteria on the substrate had a variable effect on *Candida* biofilm formation. Conclusions: Our data indicate that quantitative and qualitative nature of the bacteria on a substrate modifies the degree of *Candida* biofilm formation. This study was supported by the Research Grant Council, and the Committee for Research and Conference Grants of the University of Hong Kong, Hong Kong.

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