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Candidal Adherence to Cultured Human Cells of Varying Origin

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Candidal adherence to oral and other host surfaces is an essential prerequisite for successful colonization and infection. Thus the aim of this study was to compare the *in vitro* adhesion of seven oral isolates of *Candida* comprising *C. albicans* (3 isolates), *C. tropicalis* (x2) and *C. glabrata* (x1) to cultured monolayers of human gingival epithelial cells (GEC), gingival fibroblasts (GF) and lung fibroblasts (LF). The GEC and the GF cultures, that were established from gingival tissues obtained from healthy donors, as well as a LF cell line (MRC-5, RIKEN Gene Bank) were used. The tissue cultures were grown in 48-well tissue culture plates under standard conditions until confluent monolayers were obtained. Each well containing a monolayer was then filled with 300 *u*l of yeast suspension (10^7 cells/ml) and incubated at 37 ℃, for 60 min. After a standard washing procedure with three rinses, a quantitative assessment of the adherent yeasts was performed using a previously described bioluminescent adenosine triphosphate (ATP) assay (H. Nikawa et al. J-Dent. 1998; 26: 31-37) with modifications. The degree of blastospore adherence varied depending on the species examined as well as the origins of the cell culture system. However, all *Candida* isolates, except for a single isolate of *C. tropicalis*, demonstrated a significantly higher level of adherence to GEC than to GF (ANOVA; $p<0.01$). The adherence of all yeasts, (except for *C. tropicalis* isolates) to GEC was significantly higher than for LF ($p<0.01$); a reverse phenomenon was noted with the two isolates of *C. tropicalis* ($p<0.01$). These results suggest that the specificity of candidal adherence is regulated both by the origins of the host tissues as well as the nature of the *Candida* species.

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