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The association of phospholipase C and virulence of C. albicans

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Although the significant roles played by phospholipase B in the initiation of cellular infection and, phospholipase D in the growth and dimorphic transition in *C. albicans* has been documented, the role of phospholipase C (PLC) is not yet well understood. Objective: To examine the role of phospholipase C in growth and tissue invasion of *C. albicans*. Methods: Phospholipase positive (two) and negative (six) *C. albicans* strains (detected by the egg-yolk-plate assay) were analysed for the regulation of PLC expression in YPD medium. The total RNA and genomic DNA was extracted using SV Total RNA Isolation System and Wizard Genomic DNA Purification Kit (Promega, Madison, USA). The transcriptional level of PLC gene was measured using RT-PCR. The primers used to amplify PLC gene expression (RNA and DNA) were; PLC1-1 & PLC-2 (PLC1-1 5'TTG TTC ACC GGA ATG TCA AA 3' (2187-2206); PLC1-2 5' CCC ATT GAA CAT CTT GAA CA 3' (3088-4990). The growth of yeast in RPMI was monitored using an automatic Spectrophotometer. Candidal virulence was examined using a tissue culture model based on reconstituted human oral epithelium (RHOE) and hyphal invasion detected by routine histopathology. Results: Significant differences in growth were observed between all *C. albicans* strains. Compared with the uninfected control there were marked histopathological alteration of the RHOE during the 48 hrs with PLC+ strains compared with PLC- *C. albicans*. Conclusion: Our results suggest that phospholipase C gene expression contributes to candidal tissue invasion, but not significantly to their growth in liquid media. (Supported by the Research Grants Council and the Committee of Research and Conference grants, University of Hong Kong, Hong Kong SAR, and the Outstanding Researcher Award of LPS).

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