

TITLE: Patterns of colonisation and invasion of oral mucosa by *Candida tropicalis*

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Candida virulence attributes include the ability to colonise and invade host tissues, as well as the secretion of hydrolytic enzymes. Whilst *Candida albicans* is regarded as the principal cause of fungal infections in humans, other non-*Candida albicans* *Candida* (NCAC) species, particularly *Candida tropicalis*, are increasingly recognised as human pathogens. In addition, relatively little is known about the virulence attributes associated with *C. tropicalis* and oral candidosis. The aim of the present study was therefore to investigate *C. tropicalis* infection of a reconstituted human oral epithelium (RHOE). Specifically, a comparison of *C. tropicalis* strains originating from oral and vaginal cavities and the urinary tract was made in terms of tissue colonisation and invasion. Infection was assessed using confocal laser scanning microscopy (CLSM), and secreted aspartyl proteinase (SAP) gene expression determined by real-time PCR. The results showed, that all *C. tropicalis* strains were able to colonise RHOE in a strain-dependent manner. After 12 h infection, *C. tropicalis* was found to be highly invasive with extensive tissue damage occurring after 24 h. Real-time PCR analysis showed that *C. tropicalis* *SAPT1-4* genes expression was strain dependent, with *SAPT2-4* transcripts frequently detected and *SAPT1* transcripts rarely detected. Furthermore, tissue invasion and damage was not inhibited by pepstatin A (a specific aspartyl proteinase inhibitor). Given these findings and the fact that an increased infection time was not accompanied

with elevated *SAP* gene expression, it can be suggested that SAPs do not appear to be involved in invasion and damage of RHOE.

In summary, *C. tropicalis* is highly invasive and able to induce significant tissue damage. These features do not, however, appear to be related to specific *SAP* gene expression.