



Intravenous literature: Sellam, A., Al-Niemi, T., McInerney, K., Brumfield, S., Nantel, A. and Suci, P.A. (2009) A *Candida albicans* early stage biofilm detachment event in rich medium. *BMC Microbiology*. 9(25), doi:10.1186/1471-2180-9-25

Dispersal from *Candida albicans* biofilms that colonize catheters is implicated as a primary factor in the link between contaminated catheters and life threatening blood stream infections (BSI). Appropriate *in vitro* *C. albicans* biofilm models are needed to probe factors that induce detachment events. Results: Using a flow through system to culture *C. albicans* biofilms we characterized a detachment process which culminates in dissociation of an entire early stage biofilm from a silicone elastomer surface. We analyzed the transcriptome response at time points that bracketed an abrupt transition in which a strong adhesive association with the surface is weakened in the initial stages of the process, and also compared batch and biofilm cultures at relevant time points. K means analysis of the time course array data revealed categories of genes with similar patterns of expression that were associated with adhesion, biofilm formation and glycoprotein biosynthesis. Compared to batch cultures the biofilm showed a pattern of expression of metabolic genes that was similar to the *C. albicans* response to hypoxia. However, the loss of strong adhesion was not obviously influenced by either the availability of oxygen in the medium or at the silicone elastomer surface. The detachment phenotype of mutant strains in which selected genes were either deleted or overexpressed was characterized. The microarray data indicated that changes associated with the detachment process were complex and, consistent with this assessment, we were unable to demonstrate that transcriptional regulation of any single gene was essential for loss of the strong adhesive association. Conclusion: The massive

dispersal of the early stage biofilm from a biomaterial surface that we observed is not orchestrated at the level of transcriptional regulation in an obvious manner, or is only regulated at this level by a small subpopulation of cells that mediate adhesion to the surface.

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