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## Elucidation of virulent factors of *Candida albicans* by using a quantitative nano-LC-MS/MS system with a monolithic silica capillary column

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*Candida albicans* is an opportunistic pathogen that causes fatal disease if the host immunity is compromised. The mortality rate of systemic candidiasis is very high; hence, there is a ceaseless demand for novel pharmaceuticals against *C. albicans*. In this study, quantitative time-course proteomics of *C. albicans* during adaptation to fetal bovine serum (FBS) is described. Survival in blood is essential for virulence of *C. albicans*, and a minute analysis of such a process is required. We cultivated *C. albicans* in FBS and buffered yeast extract-peptone-dextrose media for 0-180 min, and determined quantitative time-course variations of 1024 proteins in the cultured cells by using a nano-LC-MS/MS system with a long monolithic silica capillary column. A monolithic silica capillary column, prepared from a mixture of tetramethoxysilane and methyltrimethoxysilane in a long-fused silica capillary, shows higher performance compared to conventional particle-packed columns in separation of proteome samples. Clustering analysis identified FBS-induced proteins associated with virulent processes. Furthermore, we identified possible virulence factors relating to a pleiotropic stress-tolerance phenotype, indicating a role for quick adaptation to a stressful environment. Identification of candidate virulence proteins will lead to further understanding of *C. albicans* and to the development of novel antifungal agents.

### Biography

After Wataru Aoki has obtained the doctorate degree from Kyoto University and the research fellowship of the Japan Society for the Promotion of Science (JSPS), a Japan's leading funding agency, he has moved to Osaka University under the supports of the JSPS. He has published more than 15 papers in reputed journals and attended several international conferences.

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