

# Clinical *Candida albicans* Vaginal Isolates and a Laboratory Strain Show Divergent Behaviors during Macrophage Interactions.

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## Projects

The role of filamentation in the pathogenesis of candidiasis  
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## Abstract

Typically, established lab strains are widely used to study host-pathogen interactions. However, to better reflect the infection process, the experimental use of clinical isolates has come more into focus. Here, we analyzed the interaction of multiple vaginal isolates of the opportunistic fungal pathogen *Candida albicans*, the most common cause of vulvovaginal candidiasis in women, with key players of the host immune system: macrophages. We tested several strains isolated from asymptomatic or symptomatic women with acute and recurrent infections. While all clinical strains showed a response similar to the commonly used lab strain SC5314 in various in vitro assays, they displayed remarkable differences during interaction with macrophages. This coincided with significantly reduced  $\beta$ -glucan exposure on the cell surface, which appeared to be a shared property among the tested vaginal strains for yeast extract/peptone/dextrose-grown cells, which is partly lost when the isolates faced vaginal niche-like nutrient conditions. However, macrophage damage, survival of phagocytosis, and filamentation capacities were highly strain-specific. These results highlight the high heterogeneity of *C. albicans* strains in host-pathogen interactions, which have to be taken into account to bridge the gap between laboratory-gained data and disease-related outcomes in an actual patient. **IMPORTANCE** Vulvovaginal candidiasis is one of the most common fungal infections in humans with *Candida albicans* as the major causative agent. This study is the first to compare clinical vaginal isolates of defined patient groups in their interaction with macrophages, highlighting the vastly different outcomes in comparison to a laboratory strain using commonly applied virulence-determining assays.

## Identifier

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