Control of the Yeast-Hyphae Transition in the Human Fungal Pathogen *Candida Albicans*

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**Abstract**  
*Candida albicans* is a pathogenic fungus as well as a commensal in humans. It is a common cause of mucosal infections such as oral and vaginal thrush, the latter alone affecting 75% of women worldwide. In immunocompromised patients, *C. albicans* can enter the bloodstream and cause life-threatening disease with mortality rates often exceeding 50%. In the past three decades, with the sharp increase in the number of immuno-compromised patients owing to the AIDS pandemic and ever-increasing use of various immunosuppressive therapies, *C. albicans* has become one of the most deadly microbial pathogens, killing ~400,000 people a year worldwide. A remarkable feature of *C. albicans* is its ability to switch between two distinct morphological forms, yeast and hyphae, in response to environmental cues. Human serum is a potent inducer of the yeast-hyphae transition, an event essential for virulence. Thus, elucidating the mechanisms that govern the growth transition has persistently occupied a central position in *C. albicans* research for decades. Furthermore, the dimorphism of this fungus makes it an excellent model to address some fundamental biological phenomena, in particular cell polarity establishment and maintenance. In my talk, I will describe my lab’s discovery of a novel molecule in the human blood that strongly activates the yeast-hyphae transition, its receptor and the signaling pathway it activates in *C. albicans*. I will also present the finding of a master regulator of the yeast-hyphae transition and how it controls multiple cellular events that coordinate to construct hyphae.

**Selected publications related to the topic**