



Infectious  
Diseases Labs

ID LABS

# ID LABS SEMINAR SERIES



## Prof Wang Yue

Microbiome and Cancer

Institute of Molecular and Cell Biology, A\*STAR, Singapore



Join zoom meeting [here](#)  
Meeting ID: 980 9214 6899  
Passcode: 203449

**Thursday, 13<sup>th</sup> January 2022**  
10am to 11am (SGT)



Webinar is open to all  
No registration required

## Mechanisms of *Candida albicans* invasive hyphal growth

*Candida albicans* is the most prevalent fungal pathogen in humans. Despite being a member of the human microbiota commonly inhabiting the intestinal and vaginal tract, it can cause life-threatening invasive infections in immunocompromised patients. Candidemia has high mortality rates, often exceeding 40% and killing ~700,000 people annually worldwide. A major virulence factor of *C. albicans* is its ability to switch between two distinct morphological forms: yeast and hyphae. The yeast form is thought to be the commensal state, and hyphae are virulent, specializing in penetrating host tissues, escaping from immune cells, and secreting toxins. In this talk, I will describe the discovery of microbiome-derived peptidoglycan in human blood that potently induces the yeast-to-hyphae transition and the adenylyl cyclase Cyr1 as the peptidoglycan sensor in *C. albicans*, which activates hyphal development via the cAMP-protein kinase A (PKA) signalling pathway. I will also describe the identification of the cyclin-Cdk complex, Hgc1/Cdc28, as the master regulator of hyphal morphogenesis. Hgc1 is activated by the cAMP-PKA pathway and orchestrates multiple cellular machines by directly phosphorylating their key regulatory components. To conclude the talk, I will present some powerful genetic tools we recently developed to conduct genome-wide mutational studies in *Candida* to identify new mechanisms of antifungal resistance.

**Professor WANG, Yue** obtained his Ph.D. from the University of Minnesota in 1988. In 1989, he joined IMCB as a Postdoctoral Research Fellow and was promoted to Principal Investigator in 1993. Presently, he is a Professor and Research Director. His research revolves around studying human fungal pathogens, especially *Candida* species. For his outstanding research achievements, Professor Wang was awarded the President's Science Award in 2012.