HKU Faculty of Dentistry team wins research output prize for study on antifungal resistance

A research team at the HKU Faculty of Dentistry has been awarded the Faculty Research Output Prize 2011 for publishing a research article that proposes a novel mechanism of antifungal resistance.

Prof Lakshman Samaranayake (Chair Professor of Oral Microbiology), Prof Li-jian Jin (Clinical Professor in Periodontology), and Dr C Jayampath Seneviratne (Research Assistant Professor in Oral Biosciences), with collaborator Dr Yu Wang (Associate Professor at the Department of Pharmacology and Pharmacy, HKU Li Ka Shing Faculty of Medicine), received the Faculty of Dentistry Research Output Prize at the HKU Award Presentation Ceremony for Excellence in Teaching and Research, held on 9 February 2012.


This comprehensive laboratory study is the first to investigate molecular mechanisms by which a fungus commonly found in the mouth, Candida glabrata, very often causes fatal infections in people with weak immune systems (such as patients with HIV/AIDS, cancer patients receiving chemotherapy, and transplant recipients). This fungus is known to be more dangerous when it is attached to surfaces as complex, multilayered communities, or “biofilms”, than when it is free-floating in liquid.
The researchers showed that \textit{C. glabrata} biofilms are much more drug- and chemical-resistant than free-floating cells, hence making it more difficult to completely kill the fungus. Furthermore, by using sensitive methods to analyse protein and gene expression, the team discovered key differences in the total protein repertoires of cells in the two growth modes.

Most importantly, a possible novel mechanism of antifungal resistance was identified in \textit{C. glabrata} biofilms, which opens new directions in multiple fields of research that could have clinical benefit: in fungal growth and infection, drug development, and combating drug resistance.

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