



Novel role of a family of major facilitator transporters in biofilm development and virulence of *Candida albicans*

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Titre	Novel role of a family of major facilitator transporters in biofilm development and virulence of <i>Candida albicans</i>
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Auteur	Shah, Abdul Haseeb [1], Singh, Ashutosh [2], Dhamgaye, Sanjiveeni [3], Chauhan, Neeraj [4], Vandeputte, Patrick [5], Suneetha, Korivi Jyothiraj [6], Kaur, Rupinder [7], Mukherjee, Pranab K. [8], Chandra, Jyotsna [9], Ghannoum, Mahmoud A. [10], Sanglard, Dominique [11], Goswami, Shyamal K. [12], Prasad, Rajendra [13]
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Résumé en anglais	<p>The QDR (quinidine drug resistance) family of genes encodes transporters belonging to the MFS (major facilitator superfamily) of proteins. We show that QDR transporters, which are localized to the plasma membrane, do not play a role in drug transport. Hence, null mutants of QDR1, QDR2 and QDR3 display no alterations in susceptibility to azoles, polyenes, echinocandins, polyamines or quinolines, or to cell wall inhibitors and many other stresses. However, the deletion of QDR genes, individually or collectively, led to defects in biofilm architecture and thickness. Interestingly, QDR-lacking strains also displayed attenuated virulence, but the strongest effect was observed with <i>qdr2Δ</i>, <i>qdr3Δ</i> and in <i>qdr1/2/3Δ</i> strains. Notably, the attenuated virulence and biofilm defects could be reversed upon reintegration of QDR genes. Transcripts profiling confirmed differential expression of many biofilm and virulence-related genes in the deletion strains as compared with wild-type <i>Candida albicans</i> cells. Furthermore, lipidomic analysis of QDR-deletion mutants suggests massive remodelling of lipids, which may affect cell signalling, leading to the defect in biofilm development and attenuation of virulence. In summary, the results of the present study show that QDR paralogues encoding MFS antiporters do not display conserved functional linkage as drug transporters and perform functions that significantly affect the virulence of <i>C. albicans</i>.</p>

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