

Role of ABC-Type Efflux Transporters in Antifungal Resistance of *Candida auris*

Authors : Mohamed Mahdi Alshahni, Takashi Tamura, Koichi Makimura

Abstract : Objective: The objective of this study is to evaluate roles of ABC-type efflux transporters in the resistance of *Candida auris* against common antifungal agents. Material and Methods: A wild-type *C. auris* strain and its antifungal resistant derivative strain that is generated through induction by antifungal agents were used in this study. The strains were cultured onto media containing beauvericin alone or in combination with azole agents. Moreover, expression levels of four ABC-type transporter's homologs in those strains were analyzed by real time PCR with or without antifungal stress by fluconazole or voriconazole. Results: Addition of beauvericin helped to partially restore the susceptibility of the resistant strain against fluconazole, suggesting participation of ABC-type transporters in the resistance mechanism. Real time PCR results showed that mRNA levels of three out of the four analyzed transporters in the resistant strain were more than 2-fold higher than their counterparts in the wild-type strain under negative control and antifungal agent-containing conditions. Conclusion: *C. auris* is an emerging multidrug-resistant pathogen causing human mortality worldwide. Providing effective treatment has been hampered by the resistance to antifungal drugs, demanding understanding the resistance mechanism in order to devise new therapeutic strategies. Our data suggest a partial contribution of ABC-type transporters to the resistance of this pathogen.

Keywords : resistance, *C. auris*, transporters, antifungi

Conference Title : ICAIDTMM 2019 : International Conference on Advancements in Infectious Disease Treatments and Medical Microbiology

Conference Location : Kuala Lumpur, Malaysia

Conference Dates : February 11-12, 2019