



A homologous overexpression system to study roles of drug transporters in *Candida glabrata*

TECHNOLOGY AVAILABLE FOR TRANSFER

UNMET NEED AND OPPORTUNITY

Candida glabrata is a commensal present yeast in human microbiota which is also second most common infectious agent to cause superficial skin infections or severe and life-threatening bloodstream infections. The continuous use of antimycotic drugs, especially azoles, has led to an emergence of drug-resistant strains of *C. glabrata*. Drug transporters belonging to ABC and MFS superfamilies are mainly responsible for the development of drug resistance in pathogenic *Candida* species.

The present invention has developed a highly drug-susceptible homologous system of C. glabrata strain which will facilitate in determining the role of an individual transporter for its substrate specificity, drug efflux, pathogenicity and virulence traits without the interference of other major transporters in C. glabrata.

TECHNOLOGY

The present invention provides an overexpression system where the membrane proteins for ABC superfamily can be expressed in homologous background for functional analysis of individual transporters in pathogenic *C. glabrata*. The present invention has developed a highly drug-susceptible *C. glabrata* strain deleted in seven dominant ABC transporters genes such as CgSNQ2, CgAUS1, CgCDR1, CgPDH1, CgYCF1, CgYBT1 and CgYOR1 and introduced a GOF mutation in transcription factor (TF) CgPDR1 leading to a hyper-activation of CgCDR1 locus. The properly expressed and localized transporters are fully functional, as revealed by their several-fold increased drug resistance, growth kinetics, localization studies and efflux activities.

UNIQUE SELLING PROPOSITIONS

The present homologous system will facilitate in determining the role of an individual transporter for its substrate specificity, drug efflux, pathogenicity and virulence traits without the interference of other major transporters of *C. glabrata*.

APPLICATION

Research & Development, Drug screening in *C. glabrata*.

INTELLECTUAL PROPERTY

Patent Application is filed in India.

LICENSING OPPORTUNITY

BCIL is looking for suitable industrial partner for commercialization of this genetically engineered *C. glabrata* strain with the homologous overexpression system to study roles of drug transporters.

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