

## **Differential gene expression of heat shock protein 90 (Hsp90) of Candida Albicans Obtained From Malaysian and Iranian Patients**

### **ABSTRACT**

**Background:** *Candida albicans* (*C. albicans*) has several virulence factors, in particular heat shock protein 90 (Hsp90), which is expressed by Hsp90 gene. The purposes of this study were to assess the expression of Hsp90 gene in clinical and control isolates of *C. albicans* obtained from different geographical regions (Malaysia and Iran), different temperatures (25°C, 37°C and 42°C) and mice with candidiasis.

**Methods:** *C. albicans* isolates were cultured onto sabouraud dextrose agar (SDA). The assessment of the expression of Hsp90 gene was performed using real time-polymerase chain reaction (RT-PCR).

**Results:** The results showed a significant increase in the expression of *C. albicans* Hsp90 gene under high thermal shock (42°C) when compared to other temperatures tested (P-value = 0.001). The mean differences in the expression of Hsp90 gene at 37°C were 0.20 (95% confidence interval (CI) 0.13-0.29) between Malaysian and Iranian controls (P-value = 0.040) and 0.47 (95% CI 0.27-0.60) between Malaysian and Iranian patients (P-value = 0.040).

**Conclusion:** The results demonstrated that the expression of *C. albicans* Hsp90 gene varied between Malaysian and Iranian subjects, representing the efficacy of geographical and thermal conditions on virulence gene expression.

**Keyword:** Candidiasis; *Candida albicans*; Gene expression; HSP90 heat-shock proteins; Molecular diagnostic techniques