

## **The Investigation of the Evolutionary History of the Omani Population by Analysis of HLA Class I Polymorphism**

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**ABSTRACT** The HLA polymorphism is a useful way to investigate the relatedness between human ethnic groups. This work aimed to study the relatedness of *Omanis with other modern ethnic groups using the HLA class I system polymorphism*. The study enrolled 259 healthy and unrelated individuals who were randomly selected from the Omani population. Genotyping of HLA-A and -B loci was carried out by the molecular approach for all subjects. The HLA A and B allele frequencies were estimated by the maximum-likelihood rule. The interethnic analysis was performed using genetic distances measurements, Neighbour-Joining dendrograms and extended haplotypes analysis. The HLA allele analysis showed the presence of 16 variants at the A locus and 27 variants at the B locus. Statistically, the most frequent alleles were: HLA-A\*02 (19.9%) and -B\*35 (15.3%); and the most frequent HLA-A\_B haplotype was: A\*02\_B\*51 (5.6%). When compared to others ethnic groups, the Omanis showed a genetic relatedness to the Mediterranean and West-Asian peoples. The relatedness between Omani, Mediterranean and West-Asian population might be explained by several historic and socio-geographic factors if we flashback on the long history of the Omani population.