



GENETICS AND GENODERMATOSES

## FURTHER EVIDENCE OF THE ROLE OF HLA-DRB1\*04:11 IN THE SUSCEPTIBILITY TO HECK'S DISEASE IN MAYANS INFECTED BY HPV 13

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**Introduction:** Multifocal epithelial hyperplasia, or Heck's disease, is a benign proliferative disease of the oral cavity, associated with human papillomavirus (HPV) 13 and 32 infection. It mainly presents in aboriginal ethnic groups in Latin America, with an increased prevalence among female adolescents and children.

**Objective:** This study was aimed to describe the role of HLA-DRB1 genotypes (human leucocyte antigens) in the prevalence of Heck's disease in Mayans with HPV infection to determine the effect of the lack of diversification in the genetic ancestry due to inbreeding within geographically isolated communities.

**Materials and Methods:** In this cross-sectional case-control study, thirty-three Mayan patients with clinically MEH lesions were selected to take a blood and oral mucosa sample and obtain their HLA-DRB1 and HPV-13 typing. Their information was compared with a control group of 234 healthy unrelated Mexican mestizo individuals. High-resolution HLA-DRB1 typing was determined using the sequence specific oligonucleotides (SSO) method, while HPV 13 serotype was obtained by PCR. Significance was analyzed using  $\chi^2$  analysis and Fisher exact test.

**Results:** HLA-DRB1\*04:11 was present in 78% (52 out of 66 alleles), with a statistically significant higher frequency ( $p < 0.0001$ ; OR, 189; 95% CI: 78-459) when compared to controls. We also found HLA-DRB1\*04:10 in 13% (9 out of 66 alleles) with higher frequency





( $p < 0.0001$ ; OR 36.7; 95% CI, 7.7-174) than controls. The HPV 13 was found in 88% of the sample of Mayan patients with Heck's disease.

**Conclusions:** Prevalence of Heck's disease seems to follow genetic ancestry, due to higher frequencies of the HLA-DRB1\*0411 allele, which predisposes to HPV infection in genetically susceptible individuals in which major histocompatibility complex (MHC) genes have a significant role. Lack of genetic diversification in these isolated Mayan populations may have had an impact in the presence of these alleles and subsequently in Heck's disease prevalence.

