Gradients in Distribution of HLA – DRB1* Alleles in Castes and Tribes of South India


*Department of Immunology, Madurai Kamaraj University, Madurai 625 021, Tamil Nadu, India

#K. A.P.V Govt Medical College, Trichy, Tamil Nadu, India

¥Department of Environmental Biotechnology, Bharathidasan University, Trichy 620 024, Tamil Nadu, India


KEYWORDS HLA DRB1 Alleles. South India. Castes and Tribes. Disease Associations. Phylogenetic Analysis

ABSTRACT In the present study 520 individuals comprising eleven different populations (castes and tribes) from the states of Tamil Nadu and Kerala, South India were genotyped for HLA – DRB1* allele profile by PCR-SSP method. HLA DRB1*15 (subtype of DR2) was the allele consistently showing higher frequency in all populations studied. HLA DRB1*15 revealed a highest frequency in Kani tribe (45.19%) and the lowest frequency in Narikkuravars (Gypsies) (1.02%). The other predominant alleles based on their order of frequencies observed in each population were DRB1*10, 07 and 15 among Iyers; DRB1*07, 04, 15 and 08 among Kallars; DRB1*03 and 10 among Vanniyars and Vettuva Gounders; DRB1* 07 and 10 among Sourashtra; DRB1*07 and 04 among Pallars; DRB1*04, 03, 07 and 11 among Narikkuravars; DRB1*03 among Palayar and Kani tribes; DRB1*13, 10, 04, 14 among Nairs; DRB1*10, 01, 13 and 11 among Namboothiris of Kerala. Alleles such as DRB1*01, 08, 09, 11, 12, 14 and 16 were either present in low frequencies or completely absent in many of the south Indian populations studied. Predominantly Caucasian allele DRB1*01 was present in higher frequencies in Namboothiris (12.85%) and Narikkuravars (8.53%) only. Allele DRB1*01 frequency in all other populations is significantly low. However, alleles DRB1*07 was present in many populations with higher frequencies (highest in Kallars with 23.58%). This could have been due to the higher prevalence of HIV/TB infectious and the presence of ancestral haplotype 57.1 in Indian populations. Implications of this differential distribution of these HLA-DRB1* alleles in different castes and tribes of South India are discussed in the context of high prevalence of infectious diseases such as AIDS and TB.