

1. MacDonald KS, Matukas L, Embree JE, Fowke K, Kimani J, Nagelkerke NJ, **Oyugi J**, Kiama P, Kaul R, Luscher MA, Rowland-Jones S, Ndinya-Achola J, Ngugi E, Bwayo JJ, Plummer FA. Human leucocyte antigen supertypes and immune susceptibility to HIV-1, implications for vaccine design. *Immunol Lett.* 2001 Nov 1; 79(1-2):151-7.

Abstract

T cell responses against HIV-1 have been identified in a number of exposed uninfected populations. We hypothesized that the ability to mount an effective T cell response is partly determined by the human leucocyte antigens (HLA) phenotype of the individual. We examined whether certain HLA supertypes were associated with differential HIV-1 susceptibility in sexually exposed adults and in the setting of mother to child HIV-1 transmission. By multivariate analysis, decreased HIV-1 infection risk was strongly associated with possession of a cluster of closely related class I HLA alleles (A2/6802 supertype) in sexually exposed adults (Hazard ratio=0.42, 95% confidence intervals (CI): 0.22-0.81, P=0.009) and perinatally exposed infants (Odds ratio=0.12, 95% CI: 0.03-0.54, P=0.006). The alleles in this HLA supertype are known in some cases, to present the same peptide epitopes (termed 'supertopes'), for T cell recognition. The identification of HIV-1 supertopes, which are associated with protection from HIV-1 infection, has important implications for the application of epitope-based HIV-1 vaccines in a variety of racial groups.