Influence of HLA supertypes on susceptibility and resistance to human immunodeficiency virus type 1 infection.

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Source

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Abstract

Certain human leukocyte antigens, by presenting conserved immunogenic epitopes for T cell recognition, may, in part, account for the observed differences in human immunodeficiency virus type 1 (HIV-1) susceptibility. To determine whether HLA polymorphism influences HIV-1 susceptibility, a longitudinal cohort of highly HIV-1-exposed female sex workers based in Nairobi, Kenya, was prospectively analyzed. Decreased HIV-1 infection risk was strongly associated with possession of a cluster of closely related HLA alleles (A2/6802 supertype; incidence rate ratio [IRR], 0.45; 95% confidence interval [CI], 0.27-0.72; P=.0003). The alleles in this supertype are known in some cases to present the same peptide epitopes for T cell recognition. In addition, resistance to HIV-1 infection was independently associated with HLA DRB1*01 (IRR, 0.22; 95% CI, 0.06-0.60; P=.0003), which suggests that anti-HIV-1 class II restricted CD4 effector mechanisms may play an important role in protecting against viral challenge. These data provide further evidence that resistance to HIV-1 infection in this cohort of sex workers is immunologically mediated.