A vigorous virus-specific CD4+ T cell response may contribute to the association of HLA-DR13 with viral clearance in hepatitis B

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A strong virus-specific CD4+ and CD8+ T lymphocyte response to hepatitis B virus (HBV) has been associated with viral clearance, but little is known about factors determining the individual's ability to mount such a T cell response. Recently a strong association between the HLA class II allele DR13 and a self-limited course of HBV infection has been described. In the present study of 33 patients with acute hepatitis B we show that individuals carrying HLA-DR13 mount a more vigorous CD4+ T cell response to HBV core (5706 ct/min (25th/75th percentile 3239 ct/min; 10,552 ct/min)) than patients without HLA-DR13 (1365 ct/min (490 ct/min; 5334 ct/min); $P = 0.006$). However, peptide epitopes aa 50-69, aa 61-85, and aa 81-105 were recognized most frequently by both patient groups. Moreover, among 14 HBV core-specific CD4+ T cell clones from two patients with HLA-DR13, only one T cell clone was HLA-DR13-restricted. Our data suggest that the beneficial effect of the HLA-DR13 alleles on the outcome of HBV infection could be explained by a more vigorous HBV core-specific CD4+ T cell response, which may either be due to more proficient antigen presentation by the HLA-DR13 molecules themselves or a linked polymorphism in a neighbouring immunoregulatory gene.

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