

Inhibitory Killer Cell Immunoglobulin-Like Receptor KIR3DL1 in Combination with HLA-B Bw4^{iso} Protect against Ankylosing Spondylitis

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ABSTRACT

Background: The HLA class I molecules serve as ligands for both T cell receptors and killer cell immunoglobulin-like receptors (KIRs). **Objective:** We investigated the HLA-C and HLA-Bw4 alleles as well as KIRs expression on CD56 positive lymphocytes to evaluate whether these genes and molecules could influence Ankylosing spondylitis (AS) susceptibility, alone or in combination. **Methods:** We typed 40 AS patients and 40 normal controls for HLA-C asn⁸⁰ (group 1) and HLA-C lys⁸⁰ (group 2), HLA-B Bw4^{thero}, HLA-B Bw4^{iso} and HLA-A Bw4 alleles by PCR-SSP method. We also assessed the expression of KIR2DL1/2DS1, KIR2DL2/2DL3, KIR3DL1 and KIR2DS4 by flow cytometry. The Pearson chi-square or Fisher exact test was performed for statistical analysis. **Results:** The frequency of HLA-B Bw4^{iso} but not HLA-B Bw4^{thero} and HLA-A Bw4, ligand for the inhibitory KIR3DL1, was significantly reduced in AS patients as compared with controls ($p < 0.01$). No significant differences were observed in gene carrier frequencies of HLA-C group 1 and 2 between AS and controls. Although no differences were found in the expression of KIR receptors between AS and normal subjects, we found that expression of KIR3DL1 in the presence of HLA Bw4-B^{iso} gene was reduced in patients with AS compared to healthy controls ($p < 0.009$). **Conclusion:** We conclude that HLA-B Bw4^{iso}, the ligand of inhibitory KIR3DL1, with and without the expression of KIR3DL1 might be involved in protection against AS. Our results suggest that besides the HLA and KIR genotype, expression levels of KIRs may be involved in the pathogenesis of AS disease

Keywords: Ankylosing Spondylitis, HLA, KIR3DL1, CD56

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