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# The early onset of type 1 autoimmune hepatitis has a strong genetic influence: role of HLA and KIR genes

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## Abstract

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We have previously reported a strong association between HLA-DRB1\*1301 and type 1 pediatric autoimmune hepatitis (PAH) and between HLA-DR\*0405 and adult autoimmune hepatitis (AAH). Because human killer cell immunoglobulin-like receptors are known to be associated with susceptibility to autoimmune diseases, we investigated the frequencies of HLA-A, B, C, DRB1 and KIR genes in 144 type 1 PAH and 86 AAH patients, which were compared with 273 healthy controls. We demonstrated in PAH the increased frequency of the functional

form of KIR2DS4-Full Length (KIR2DS4-FL), which in combination with HLA-DRB1\*1301 revealed a strong synergistic effect (odds ratio=36.5). PAH-KIR2DS4-FL+ subjects have shown an increased frequency of their putative HLA-C\*02, 04 and 06 ligands. KIR analysis of PAH also revealed a decreased frequency of KIR2DL2 gene and its ligand. In contrast, AAH cases have shown a weaker increased frequency of KIR2DS4-FL, a lack of synergistic effect with HLA class II antigens and a moderate association with HLA-DRB1\*0405. Of note, we demonstrated that liver T cells have a unique pattern of KIR expression. These results show a KIR gene involved in autoimmune hepatitis and suggest a stronger genetic influence for the early onset type I autoimmune hepatitis.

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## Ethics declarations

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### Competing interests

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