



POSTER PRESENTATION

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# Association of interleukin-10 promoter genetic variants with T-cell and B-cell activation in HIV-1 infection

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## Background

Interleukin-10 (IL-10) is a potent immunoregulatory cytokine, with promoter polymorphisms that have previously been associated with HIV-1 susceptibility and pathogenesis. Association of IL-10 SNPs with markers of CD4, CD8 and B cell activation has not previously been investigated.

## Methods

Two IL-10 polymorphisms were genotyped by TaqMan allelic discrimination and markers of activation of CD4, CD8 and B cells were measured in 63 individuals using flow cytometry. The following monoclonal antibody combinations were used: anti-CD3 Pac-blue, anti-CD38 PE-Cy7, anti-HLA-DR ACP-Cy7, anti-CD95 PE, anti-CD19 Alexa-700, anti-IgG PE-Cy5, anti-PD-1 APC, anti-Ki67 FITC, anti-CD4 Qdot605 and anti-CD8 Qdot655.

## Results

Previous studies on this cohort showed a significant association between -1082GG and higher median IL-10 expression, compared to the -1082AA/AG ( $p = 0.0006$ ). The -592AA and -1082AA (both previously shown to be associated with low-IL-10 production) had significantly higher median expression of HLA-DR on CD4 and CD8 cells respectively, compared to the other genotypes (-592AA vs. -592CA  $p = 0.005$ , -592AA vs. -592CC  $p = 0.03$  and -1082AA vs. -1082AG  $p = 0.02$ ). The -592AA genotype also had a higher median expression of CD95 and PD-1 on CD4 cells (-592AA vs. -592CA  $p = 0.0227$ , -592AA vs. -592CC  $p = 0.0270$  and -592AA vs. -592CA

$p = 0.01$  respectively). The -592CC and -1082GG genotypes associated with higher median expression of IgG on the surface of B cells (-592CC vs. -592AA  $p = 0.0207$  and -1082GG vs. -1082AG  $p = 0.0392$ , -1082GG vs. -1082AA  $p = 0.0051$ ).

## Conclusion

These data suggest that IL-10 polymorphisms that affect cytokine production and HIV pathogenesis may affect markers of immune activation and exhaustion in response to antigen, and suggest a beneficial role for IL-10 in chronic HIV infection. Further studies on association between IL-10 and the quality and magnitude of immune responses in HIV infection are needed.

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