



POSTER PRESENTATION

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# Control of HIV-1 by multiple immunodominant HIV-1-specific CD8<sup>+</sup> T cells in HIV-1-infected Japanese individuals

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From AIDS Vaccine 2012

Boston, MA, USA. 9-12 September 2012

## Background

Previous studies of the comprehensive analysis of HIV-1-specific CTL responses in Caucasian and African cohorts demonstrated the association of the CTL responses to HIV-1 Gag protein with the control of HIV-1 replication. However, such analysis in Asian cohorts has not been reported. In the present study, we performed the comprehensive analysis of CD8<sup>+</sup> T cell responses against 11-mer overlapping HIV-1 Nef, Gag, and Pol peptides in 401 chronically HIV-1 clade B-infected treatment-naive Japanese individuals.

## Methods

The CD8<sup>+</sup> T cell responses to cocktails of the peptides were evaluated by measuring IFN-g-producing CD8<sup>+</sup>T cells by using ELISPOT assay.

## Results

To clarify CTLs which control HIV-1 infection in this cohort, we statistically analyzed differences of viral load and CD4 counts between responders to each peptide cocktail in each HLA<sup>+</sup> individuals and non-responders using two-tailed Mann-Whitney's test. We found that several HLA alleles were significantly correlated with low viral load and high CD4 counts in the responses to 5 Nef, 10 Gag, or 16 Pol cocktails. In these cocktails, we identified 2 Nef, 12 Gag and 7 Pol CTL epitopes restricted by 9 HLA alleles. The breadth of CTL responses to these epitopes was significantly associated with low viral load ( $p=1.7 \times 10^{-10}$ ) and high CD4 counts ( $p=4.1 \times 10^{-13}$ ). The total magnitude of responses to the epitopes was also

significantly correlated with low viral load ( $r=-0.30$ ,  $p=1.8 \times 10^{-9}$ ) and high CD4 counts ( $r=0.37$ ,  $p=5.0 \times 10^{-14}$ ).

## Conclusion

These results suggest that the CTL responses to these epitopes play an important role in the control of HIV-1 infection in chronically HIV-1-infected Japanese individuals.

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Published: 13 September 2012

doi:10.1186/1742-4690-9-S2-P256

**Cite this article as:** Murakoshi *et al.*: Control of HIV-1 by multiple immunodominant HIV-1-specific CD8<sup>+</sup> T cells in HIV-1-infected Japanese individuals. *Retrovirology* 2012 **9**(Suppl 2):P256.

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