





Control of HIV-1 by multiple immunodominant HIV-1-specific CD8+ T cells in HIV-1-infected Japanese individuals

H Murakoshi^{1*}, M Koyanagi¹, H Gatanaga², T Naruto¹, S Oka², M Takiguchi¹

From AIDS Vaccine 2012 Boston, MA, USA. 9-12 September 2012

Background

Previous studies of the comprehensive analysis of HIV-1specific 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⁺ 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⁺ T cell responses to cocktails of the peptides were evaluated by measuring IFN-g-producing CD8⁺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⁺ 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= 1.7×10^{-10}) and high CD4 counts (p= 4.1×10^{-13}). The total magnitude of responses to the epitopes was also

¹Center for AIDS Research, Kumamoto University, Kumamoto, Japan Full list of author information is available at the end of the article 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.

Author details

¹Center for AIDS Research, Kumamoto University, Kumamoto, Japan. ²AIDS Clinical Center, National Center for Global Health and Medicine, Tokyo, Japan.

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+ T cells in HIV-1-infected Japanese individuals. *Retrovirology* 2012 9(Suppl 2):P256.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

BioMed Central

Submit your manuscript at www.biomedcentral.com/submit



© 2012 Murakoshi et al; licensee BioMed Central Ltd. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/2.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.