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Poster presentation

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PI6-12. Relative dominance of Gag-specific cytotoxic T lymphocytes is associated with viral load inversely in HIV-1 clade B' infected Chinese

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Background

The role of CD8⁺ T cells with cytotoxic (CTL) activity of different HIV proteins in controlling HIV-1 infection is still controversial, though a number of studies have suggested that gag-specific CTLs could play a superior role in viral control. The characterization of HIV-1-specific CTLs in genetic diverse individuals infected with locally prevalent HIV-1 strains will provide useful information in elucidating the mechanism of HIV-1 pathogenesis.

Methods

The HIV-1-specific CTLs were measured with an IFN- γ ELISPOT assay by using overlapping peptides covering the whole consensus clades B proteome in 114 untreated HIV-1 clade B' infected Chinese. The correlation of CTL responses with immune control of HIV-1 infection was analyzed.

Results

The mean spot-forming cells/10⁶ PBMCs of positive responses to each of the HIV-1 proteins were as follows: Gag, 2853; Pol, 1305; Env, 928; Nef, 1244; Tat, 543; Rev, 827; Vpr, 260; Vpu, 476 and Vif, 365. PBMC from 101/114 (88.60%) subjects recognized at least one overlapping Gag peptide. Pol, Env, Nef, Tat, Rev, Vpr, Vpu and Vif were targeted by 85.09, 74.56, 78.95, 29.82, 29.82, 19.30, 12.28 and 32.46% of studied individuals, respectively. When viral loads were compared to the proportion of pro-

tein-specific CTL responses of the total virus-specific responses, we found an inverse association between viral loads and the breadth ($p < 0.001$) and magnitude ($p < 0.001$) of the relative Gag response, and a direct association between viral loads and the breadth of the relative Tat ($p = 0.029$), Pol ($p = 0.003$) and Env ($p = 0.029$) response and magnitude of the relative Tat ($p = 0.043$), Pol ($p = 0.003$) and Env ($p = 0.030$) response.

Conclusion

In present study, Gag is the most immunodominant region. The proportion of Gag-specific CTL responses among the total virus-specific CTL activity is inversely associated with viral loads. The dominance of Gag-specific responses may be an indicator of relative control of HIV infection.