Retrovirology

BioMed Central

Poster presentation

P04-11. Prevalence of neutralizing antibody responses in chronic clades A and D human immunodeficiency virus type 1 (HIV-1) infections

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from AIDS Vaccine 2009
Paris, France. 19–22 October 2009

Published: 22 October 2009

Retrovirology 2009, **6**(Suppl 3):P39 doi:10.1186/1742-4690-6-S3-P39

This abstract is available from: http://www.retrovirology.com/content/6/S3/P39

Background

Characterizing neutralizing antibody (Nab) responses in non-B HIV-1 subtypes is essential, because the data may illustrate key genetic and antibody properties that could impact the design and testing of Nab vaccine candidates in countries where these subtypes circulate. The principle objective of this study is to document the magnitude, breadth and prevalence of neutralizing antibodies in a cohort of non-B HIV chronically infected individuals in rural Uganda.

Methods

45 treatment naive patients were randomly selected from the Rural Clinical Cohort (RCC), which recruits HIV infected individuals with known date of sero-conversion. The average time of infection was 5.45 yrs (range 1–16 yrs). Two sample points were selected for each patient; T1(early) and T2(late), and tested against two tier-1 strains of HIV-1 (SF162.LS, MW965.26) and MLV negative control virus; in the standardized TZM-bl neutralization assay. MLV positive samples were excluded from analaysis.

Results

Magnitude of the NAb response against SF162.LS(subtype B) and MW965.26(subtype C) varied but was relatively potent in a most cases (ID50 titers >1,000, range 20–87,480). 30% of samples showed activity against SF162 at T1 and 40% against MW965.26. At T2, a significant increase in titers against both viruses was observed; 50% neutralized SF162 and 65% neutralized MW965.26 ($p = 0.001$ and $p = 0.0006$ respectively). NAb titers against both viruses were closely associated and increased significantly ($p < 0.0012$) from the early to late time point. The magnitude of this increase was substantial in some subjects, whereas in a few the response decreased over time.

Conclusion

A high prevalence of Nabs was detected. The magnitude and long-term kinetics varied between subjects. Further analysis with tier 2 viruses (4 As, 4 Bs, 4 Cs and 4 Ds) and association with viral load and CD4 counts will be performed to document the prevalence and kinetics of cross-reactive neutralizing antibody responses.