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Poster presentation

P16-35. Specific CD4 responses to HIV-1 epitopes in exposed seronegative (ESN) versus infected commercial sex workers

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Background

A long standing study of low social economic status commercial sex workers in the Majengo cohort has demonstrated variable susceptibility to HIV-1 infection, where some of the highly exposed subjects remain persistently seronegative signifying resistance to HIV-1. There has been intense interest in understanding mechanisms responsible for this phenomenon. Current research has shown that MHC alleles play a significant role in the possible mechanisms of resistance. However, if both HIV infected and resistant individuals have HIV specific T helper responses, then there is a certain uniqueness that protects the latter group from contracting the disease. This study evaluated the protective immunity in the light of specific selective peptide recognition. We analyzed the cellular immune responses by invitro stimulation of PBMC's isolated from the subjects with specific HIV-1 peptide pools.

Methods

The peptide pools were designed from the entire HIV-1 Clade A proteome giving 778 overlapping peptides grouped into 20 pools. Each pool had 40 peptides except pool 20 which had 18 peptides. The immune response was determined using 10 colour LSR II flow cytometry to measure INFγ production at day 3 and proliferation at day 6 from a total of 66 individuals of whom 33 were resistant, 20 negatives and 18 infected.

Results

The resistant group shows more IFNγ production and proliferation, especially in response to peptide pools 1, 12, 13 and 14 (Env, P24, P31 and P2P7P1, P6 P7, Protease and REV peptide pools). The difference was significant at 95% CI with a p value of 0.0001.

Conclusion

There was no correlation between IFNγ production and proliferation indicating that chemoreceptor polymorphism is important. Future directions include adding the cytokines panel at day 3 to measure polyfunctional immune responses in addition to breaking down the individual peptide pools that showed unique responses to characterize the magnitude of HIV specific reactivity.