P04-36. HIV-1-speficic antibody dependant cellular cytotoxicity (ADCC) médiated by primary NK cells

M Delaporte, Vincent Holl, Thomas Decoville, J Penichon, Christiane Moog

Retrovirology

Poster presentation

P04-36. HIV-1-speficic antibody dependant cellular cytotoxicity (ADCC) médiated by primary NK cells

M Delaporte*, V Holl, T Decoville, J Penichon and C Moog

Address: UMR INSERM/UDS, Strasbourg, France
* Corresponding author

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

Published: 22 October 2009

Retrovirology 2009, **6**(Suppl 3):P64 doi:10.1186/1742-4690-6-S3-P64

This abstract is available from: http://www.retrovirology.com/content/6/S3/P64

Background

Natural killer (NK) cells play an important role in antiviral immune responses; they kill HIV-1-infected cells either by direct lysis or through an antibody-dependent cellular cytotoxicity (ADCC) mechanism. HIV-1-specific ADCC were mainly detected using the CEM-NK target cell line. The aim of our study was to analyze the ADCC activity of various HIV-1-specific antibodies with an assay involving primary activated NK cells and autologous infected CD4 T-lymphocytes.

Methods

NK cells were purified from PBMC by magnetic bead selection. Autologous lymphocytes were stimulated by PHA for 3 days before being infected with different R5 HIV-1 strains for 3 additional days. NK cells previously activated with IL-2 or IL-15 were added to infected lymphocytes for 4 hours in the presence of different concentrations of anti-HIV-1-specific antibodies. The percentages of HIV-1-infected CD4 T-lymphocytes were measured by the detection of intracellular viral p24 antigen using flow cytometry. The immuno-phenotype of NK cells and the expression of CD107a (marker of NK cell degranulation) were determined in parallel.

Results

Our results show that in the absence of anti-HIV-1-specific antibodies, activated NK cells reduce by up to 50% the number of infected CD4 T-lymphocytes by direct lysis. In the presence of antibodies, the percentage of HIV-1-infected CD4 T-lymphocytes was further reduced and the percentage of NK cell degranulation was increased indicating HIV-1-specific ADCC activity. This activity was compared to other antibody inhibitory activities i.e. HIV-1 neutralization and Fcgamma receptors-mediated HIV-1 inhibition. Moreover, a correlation between the HIV-1-specific ADCC and the immuno-phenotype of NK cells was analyzed.

Conclusion

These results demonstrate that HIV-1-specific antibodies can inhibit HIV-1 replication *in vitro* by different mechanisms, including ADCC. If ADCC participates in HIV-1 protection, antibodies displaying ADCC should be induced by vaccination together with a stimulation of an innate NK immune response.