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Poster presentation

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Background

Dendritic cells (DCs) present on the mucosa site are considered as one of the first target cells of HIV-1 following sexual transmission. It has been demonstrated that immature DCs could transfer infectious HIV-1 particles to CD4 T-lymphocytes via a virological synapse in *trans*. The aim of this study was to investigate the capacity of monoclonal neutralizing antibodies to inhibit HIV-1 transfer from immature DCs to CD4 T-lymphocytes.

Methods

Immature DCs were generated from purified human blood monocytes. They were infected with HIV-1BaL for 2 hours and then washed extensively before exposure to purified primary PHA-activated CD4 T-lymphocytes in the presence or in the absence of monoclonal neutralizing antibodies. At different time-points, the percentage of HIV-infected DCs and CD4 T-lymphocytes were measured by flow cytometry detection of intracellular viral p24 antigen. The quantity of virus particles released in the supernatant was determined by p24 ELISA.

Results

In the presence of CD4 T-lymphocytes, we found a strong enhancement of the percentage of p24-positive immature DCs. Monoclonal neutralizing IgG1b12, 2F5, 2G12 or 4E10 added 2 hours after infection of immature DCs could totally inhibit HIV-1 replication in the CD4 T-lymphocytes. Nevertheless, due to the efficient HIV-1 replication in DCs in the presence of CD4 T-lymphocytes, HIV-1 p24 released in the supernatant of the co-culture was only reduced in presence of antibodies.

Conclusion

Here we clearly demonstrated that neutralizing antibodies are efficient inhibitors of HIV transfer to CD4 T lymphocytes and that HIV-1 replication becomes very efficient in DCs when they are co-cultured with primary CD4 T-lymphocytes. These results suggest that antibodies should thus be induced rapidly at the mucosal site to prevent DC infection and transfer to CD4 T-lymphocytes.