Retrovirology

Poster presentation

P11-16. Transfer of HIV-1 from Langerhans and interstitial dendritic cells to T lymphocytes: protection mediated by antibodies?

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Background

Langerhans (LC) and interstitial dendritic cells (IDC) present in mucosal tissues are among the first HIV-1 target cells. Infected DC have been shown to transfer the virus to nearby CD4 T lymphocytes. We have demonstrated that neutralizing antibodies (NAb) were able to inhibit the transfer of HIV-1 from monocyte-derived DC to CD4-T lymphocytes. In the context of HIV-1 transmission at mucosal site, we analysed the transfer of HIV-1 from LC and IDC to CD4-T lymphocytes, and determined the capacity of NAb to inhibit this transfer.

Methods

LC and IDC were obtained by differentiation of CD34+ cord blood cells. Immature LC/IDC were infected during 2 hours with HIV-1 and extensively washed prior to the coculture with primary lymphocytes or CD4-T cell lines, in presence or absence of NAb. HIV-1 infection was determined by the detection of infected cells by intracellular p24-staining and flow cytometry analysis, or by the quantification of HIV-1 released in the supernatant by p24-ELISA dosage.

Results

We demonstrated that LC and IDC transfer HIV-1 to T lymphocytes. Moreover, neutralizing antibodies efficiently inhibit HIV-1 replication CD4-T lymphocytes when cocultured with infected LC/IDC. These results show that HIV-1 transfer to CD4-T cells is not resistant to neutralization. Surprisingly, when primary CD4-T or non-permissive B lymphocytes were cocultured with HIV-1 exposed DC, a strong stimulation of HIV-1 production was detected in LC and IDC. This augmentation was not observed in the coculture of LC/IDC with CD4-T cell lines.

Conclusion

Altogether, these data demonstrate that, in the mucosal context where DC and T or B lymphocytes are in close contact, infected DC may become highly HIV replicating cells. As Ab were able to efficiently inhibit HIV-1 transfer from LC/IDC to T lymphocytes, they should be locally induced at the mucosal site by vaccination to prevent HIV-1 dissemination.