



POSTER PRESENTATION

Open Access

The humanized BLT mouse to study HIV transmission

M Deruaz^{1*}, TT Murooka¹, T Dudek², VD Vrbanac¹, T Tivet¹, KC Bankert¹, TM Allen², AM Tager¹, AD Luster¹

From AIDS Vaccine 2012

Boston, MA, USA. 9-12 September 2012

Background

Worldwide, the majority of HIV-1 infections are acquired by vaginal transmission. Studies in SIV-1 infected non-human primates have shown that SIV-1 infection takes hold initially in a small population of CCR5+ cells in the female lower genital tract (FLGT) where the infection expands first locally before disseminating to the draining lymph node (LN) to establish a systemic infection. Our goal is to use humanized BLT mice to address whether the infection paradigm established for SIV-1 in non-human primates holds true during HIV-1 infection *in vivo*.

Methods

We studied the kinetics of infection during the first two weeks after intravaginal HIV-1 exposure by measuring the presence of virus in the FLGT, LNs and blood after 2, 6, 10 and 12 days post infection (p.i.) by qPCR and flow cytometry.

Results

Our results show that similar to the non-human primate model, the presence of virus is first detected by qRT-PCR in the FLGT as soon as day 2 p.i., followed by the LN at day 6 p.i. and the blood at day 12 p.i. Similar but delayed kinetics were observed using p24 staining by flow cytometry, with positive staining of T cells located in the FLGT at day 6 p.i., in the draining LN between day 6 and day 10, and in the non draining LN at day 12 p.i.

Conclusion

Our data suggests that HIV-1 transmission and initial replication in BLT mice following intravaginal exposure occurs first locally in the LGT and then disseminates to

the draining LN. The virus then spreads to the non-draining LNs and subsequently into the blood, suggesting that BLT mice have an “eclipse phase” following HIV infection similar to what have been described for SIV infection of macaques and HIV infection of humans.

Author details

¹Massachusetts General Hospital, Harvard Medical School, Charlestown, MA, USA. ²Ragon Institute of MGH, MIT and Harvard, Charlestown, MA, USA.

Published: 13 September 2012

doi:10.1186/1742-4690-9-S2-P197

Cite this article as: Deruaz *et al.*: The humanized BLT mouse to study HIV transmission. *Retrovirology* 2012 **9**(Suppl 2):P197.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit



¹Massachusetts General Hospital, Harvard Medical School, Charlestown, MA, USA

Full list of author information is available at the end of the article