



POSTER PRESENTATION

Open Access

The contribution of monocytes/macrophages to HTLV-1 infection and persistence

Maria Fernanda de Castro-Amarante^{1*}, Cynthia Pise-Masison¹, Katherine McKinnon¹, Raya Massoud², Steven Jacobson², Genoveffa Franchini¹

From 16th International Conference on Human Retroviruses: HTLV and Related Viruses Montreal, Canada. 26-30 June 2013

Peripheral blood monocytes can be classified into three main subsets: CD14⁺⁺CD16⁻ (classical), CD14⁺CD16⁺⁺ (non-classical), and CD14⁺⁺CD16⁺ (intermediate) which exert important roles in innate and adaptive immunity. Here we investigated whether the different monocyte subsets are potential HTLV-1 reservoirs that contribute to viral infection and persistence. PBMCs from 17 HTLV-1 infected patients (IP) and 11 normal donors (ND) were phenotypically analyzed by flow cytometry. Classical monocyte frequency was lower in HTLV-1-IPs compared to NDs ($p=0.048$). Moreover, we found a positive correlation between PVL and intermediate monocyte frequency ($r=0.6735$, $p=0.0042$). Focusing on the presence of HTLV-1 provirus DNA in the different monocyte subsets, cell populations were isolated from PBMCs of 16 HTLV-1-IP. When we analyzed by nested PCR genomic DNA isolated from sorted CD4⁺, CD8⁺ CD14⁺⁺CD16⁻, CD14⁺CD16⁺⁺, and CD14⁺⁺CD16⁺, we found that HTLV-1 patients with high PVL, all monocyte subsets as well as CD4⁺ and CD8⁺ cells were positive for HTLV-1. In contrast, the intermediate monocytes were negative or very weakly positive for HTLV-1 in patients with low PVL. To test whether natural HTLV-1 infection recapitulates what we find in HTLV-1-IPs, we analyzed the monocyte subsets distribution in 8 HTLV-1 infected Rhesus macaques and 16 naïve animals. Consistent with human infection, the frequency of intermediate monocytes was higher in infected macaques compared to naïve animals ($p=0.0001$) with a positive correlation between PVL and intermediate monocytes frequency ($r=0.6530$, $p=0.03$). In conclusion, our results suggest that monocytes play

an important role in viral dissemination and persistence and are potential viral reservoirs.

Authors' details

¹Animal Models and Retroviral Vaccines Section, National Cancer Institute, Bethesda, MD, USA. ²Viral Immunology Section, Neuroimmunology Branch, National Institute of Neurological Disorders and Stroke, Bethesda, MD, USA.

Published: 7 January 2014

doi:10.1186/1742-4690-11-S1-P123

Cite this article as: de Castro-Amarante *et al.*: The contribution of monocytes/macrophages to HTLV-1 infection and persistence. *Retrovirology* 2014 **11**(Suppl 1):P123.

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



* Correspondence: amarantem@mail.nih.gov

¹Animal Models and Retroviral Vaccines Section, National Cancer Institute, Bethesda, MD, USA

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

