## ORAL PRESENTATION



**Open Access** 

## STLV-1-infected Japanese macaque as a model of HTLV-1 infection

Michi Miura, Junko Tanabe, Kenji Sugata, Tiejun Zhao, Guangyong Ma, Paola Miyazato, Jun-ichiro Yasunaga, Masao Matsuoka<sup>\*</sup>

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

Various non-human primates are the natural hosts of simian T-cell leukemia virus type 1 (STLV-1). In the present study, we analyzed Japanese macaques naturally infected with STLV-1, and evaluated them as an animal model for HTLV-1 research. Approximately 60% of individuals in the colony are seropositive for STLV-1. Clonal proliferation of STLV-1<sup>+</sup> cells was investigated by massively sequencing the provirus integration sites. We found that some clones proliferated distinctively in monkeys with higher proviral load. T lymphocytes expressing Tax in the peripheral blood were largely CD4+. Notably, one of the monkeys surveyed in this study developed T-cell lymphoma in the brain, indicating that STLV-1 is oncogenic in Japanese macaques. We also assessed the molecular function of STLV-1 Tax and STLV-1 bZIP factor (SBZ). STLV-1 Tax activated NFAT, AP-1, canonical Wnt and canonical NF-kappa B pathways, whereas SBZ suppressed those signaling pathways. SBZ enhanced TGF-beta signaling, but STLV-1 Tax suppressed it. These findings suggest that STLV-1 Tax and SBZ have similar functions to their counterparts of HTLV-1. In addition, we found that administration of anti-CCR4 antibody, which is currently used in Japan for the treatment of ATL patients, efficiently reduced proviral load in STLV-1-infected Japanese macaques. Our study provides the evidence that Japanese macaques naturally infected with STLV-1 correspond to HTLV-1 carriers and are a suitable animal model to investigate the pathogenesis of HTLV-1 and novel therapeutic strategies.

Published: 7 January 2014

\* Correspondence: mmatsuok@virus.kyoto-u.ac.jp

Institute for Virus Research, Kyoto University, Kyoto, Japan



## 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

) Bio Med Central

Submit your manuscript at www.biomedcentral.com/submit



© 2014 Miura et al; licensee BioMed Central Ltd. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/2.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The Creative Commons Public Domain Dedication waiver (http:// creativecommons.org/publicdomain/zero/1.0/) applies to the data made available in this article, unless otherwise stated.