



MEETING ABSTRACT

Open Access

# Reduced Tim-3 expression on HTLV-I Tax-specific cytotoxic T lymphocytes in HTLV-I infection

Nashwa H Abdelbary<sup>1</sup>, Hazem M Abdullah<sup>1</sup>, Toshio Matsuzaki<sup>2</sup>, Daisuke Hayashi<sup>2</sup>, Yuetsu Tanaka<sup>3</sup>, Hiroshi Takashima<sup>2</sup>, Shuji Izumo<sup>1</sup>, Ryuji Kubota<sup>1\*</sup>

From 15th International Conference on Human Retroviruses: HTLV and Related Viruses  
Leuven and Gembloux, Belgium. 5-8 June 2011

T-cell immunoglobulin and mucin domain-containing molecule-3 (Tim-3) and programmed cell death-1 (PD-1) are T-cell exhaustion molecules. We investigated the expression of Tim-3 and PD-1 in HTLV-I infection. Tim-3 expression, but not PD-1 expression, was reduced on CD4<sup>+</sup> and CD8<sup>+</sup> T cells of HAM/TSP patients and HTLV-I carriers as compared to healthy controls. Tim-3 expression was also reduced in HTLV-I Tax-specific cytotoxic T lymphocytes (CTLs) as compared to cytomegalovirus-specific CTLs. Tim-3<sup>+</sup>, but not PD-1<sup>+</sup>, Tax-specific CTLs produced less interferon- $\gamma$  and exhibited low cytolytic activity. However, we observed no difference in the expression of Tim-3 or cytolytic activity between Tax-specific CTLs of HAM/TSP patients or carriers. Moreover, HTLV-I-infected CD4<sup>+</sup> T cells showed decreased Tim-3 expression. The decreased expression of Tim-3 in HTLV-I infection is a marked contrast to other chronic viral infections such as HIV and HCV infection, where Tim-3 expression is increased in T cells, including the virus-specific CTLs. In HTLV-I infection, CTL response may not be negatively regulated by Tim-3. Rather, immune cells such as HTLV-I-specific CTLs may be resistant to cell death through the Tim-3/galectin-9 pathway. In summary, our data suggest that Tim-3 expression is reduced in HTLV-I infection and that a high number of Tim-3<sup>-</sup> HTLV-I-specific CTLs preserves their cytolytic activity, thereby controlling viral replication.

#### Author details

<sup>1</sup>Center for Chronic Viral Diseases, Kagoshima University, Kagoshima 890-8544, Japan. <sup>2</sup>Department of Neurology and Geriatrics, Kagoshima University,

\* Correspondence: kubotar@m2.kufm.kagoshima-u.ac.jp

<sup>1</sup>Center for Chronic Viral Diseases, Kagoshima University, Kagoshima 890-8544, Japan

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

Kagoshima 890-8544, Japan. <sup>3</sup>Department of Immunology, University of the Ryukyus, Nishihara-cho, Okinawa 903-0215, Japan.

Published: 6 June 2011

doi:10.1186/1742-4690-8-S1-A112

**Cite this article as:** Abdelbary *et al.*: Reduced Tim-3 expression on HTLV-I Tax-specific cytotoxic T lymphocytes in HTLV-I infection. *Retrovirology* 2011 **8**(Suppl 1):A112.

**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](http://www.biomedcentral.com/submit)

