



MEETING ABSTRACT

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Possibility of $\gamma\delta$ T cell immunotherapy for HTLV-1-infected individuals

Tomoo Sato¹, Masato Muto², Natsumi Araya¹, Ryuji Maekawa², Noboru Suzuki¹, Atae Utsunomiya³, Ken-ichiro Seino⁴, Yoshihisa Yamano^{1*}

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$\gamma\delta$ T cells, a small subset of T lymphocytes, are involved in innate immunity. It has been demonstrated that $\gamma\delta$ T cells have cytotoxic activities against cells infected with a variety of viruses. However, there is little evidence suggesting a cytotoxic activity of $\gamma\delta$ T cells against HTLV-1-infected cells. Therefore, we investigated whether $\gamma\delta$ T cells play a protective role in the defense against HTLV-1.

Using PBMCs from asymptomatic carriers (ACs) and HAM/TSP patients, we assayed the frequency of CD3+V γ 9+ ($\gamma\delta$ T) cells and the correlation between its frequency and the HTLV-1 load. The frequency of $\gamma\delta$ T cells was significantly decreased in HAM/TSP patients compared with that in ACs. The frequency of $\gamma\delta$ T cells was inversely correlated with the proviral load. These results suggest that $\gamma\delta$ T cells have a protective effect on HTLV-1-infected individuals. Next, CD3+V γ 9+ cells and CD3+V γ 9- cells were separated from PBMCs of HTLV-1-infected persons by FACS and the proviral load of each population was quantified by real-time PCR. The proviral load in $\gamma\delta$ T cells was markedly lower than that in CD3+ lacking $\gamma\delta$ T cells. Furthermore, we cultured PBMCs from HTLV-1-infected individuals in the presence of IL-2 and zoledronate. In some cases, the majority of cells contained in these cultures became $\gamma\delta$ T cells and the proviral load was markedly decreased. The cultured PBMCs showed strong cytotoxic activities against a HTLV-1-infected cell line as well as an ATL cell line. These results raise the possibility of $\gamma\delta$ T cell immunotherapy in HTLV-1-infected individuals.

Author details

¹Institute of Medical Science, St. Marianna University School of Medicine, Kawasaki, Japan. ²Medinet Medical Institute, MEDINET Co. Ltd., Tokyo, Japan. ³Department of Hematology, Imamura Bun-in Hospital, Kagoshima, Japan. ⁴Institute for Genetic Medicine Research Section of Pathophysiology, Hokkaido University, Hokkaido, Japan.

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* Correspondence: yyamano@marianna-u.ac.jp

¹Institute of Medical Science, St. Marianna University School of Medicine, Kawasaki, Japan

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