



POSTER PRESENTATION

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HTLV-1 Tax peptide-carrying polyion complex nanoparticles induce potent cellular immunity in mice

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

Development of safe and effective vaccines is important for controlling a variety of infectious diseases, including retroviral infections. The induction of cytotoxic T lymphocytes (CTLs) is a promising strategy for elimination of infected cells. Polyion complex (PIC) nanoparticles have been created using anionic biodegradable poly(γ -glutamic acid) (γ -PGA) and cationic protamine. Amphiphilic graft copolymers, consisting of γ -PGA and l-phenylalanine (l-Phe) hydrophobic side chain, were synthesized by grafting l-Phe to γ -PGA. The PIC nanoparticles were prepared by mixing the graft copolymers with protamine in phosphate buffered saline. In this study, antigen peptide-carrying PIC nanoparticles were examined for their effect on the induction of antigen-specific cellular immunity in mice. The antigen-specific CTL response was evaluated by intracellular cytokine staining and IFN- γ ELISPOT assay. The immunization with PIC nanoparticles carrying HTLV-1 Tax peptide could induce the expansion of Tax-specific CD8⁺ T cells. In contrast, no such induction of the antigen-specific CD8⁺ T cells was observed, when mice were immunized with the peptide alone or peptide plus an aluminum adjuvant. These results suggest that the Tax peptide-carrying PIC nanoparticles are capable of inducing cellular immune responses and may have potential as an effective vaccine adjuvant for anti-HTLV-1 vaccines.

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Published: 7 January 2014

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doi:10.1186/1742-4690-11-S1-P63

Cite this article as: Uto *et al.*: HTLV-1 Tax peptide-carrying polyion complex nanoparticles induce potent cellular immunity in mice. *Retrovirology* 2014 **11**(Suppl 1):P63.

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