

Poster presentation

Open Access

PI7-19. Impact of single epitope-specific CD8+ T cell memory induction by prophylactic vaccination on immunodeficiency virus control

T Tsukamoto* and T Matano

Address: Division of Microbial Infection, Institute of Medical Science, University of Tokyo, Tokyo, Japan

* Corresponding author

from AIDS Vaccine 2009
Paris, France. 19–22 October 2009

Published: 22 October 2009

Retrovirology 2009, **6**(Suppl 3):P301 doi:10.1186/1742-4690-6-S3-P301

This abstract is available from: <http://www.retrovirology.com/content/6/S3/P301>

© 2009 Tsukamoto and Matano; licensee BioMed Central Ltd.

Background

Despite many efforts to develop AIDS vaccines eliciting T-cell responses, whether this approach actually results in HIV control remains unknown. It is important to determine which T-cell responses to be induced by prophylactic vaccination for HIV control after virus exposure. Virus-specific CD8+ T cells are crucial for HIV control, but the real benefit of their memory induction has not been evaluated. Here, we examined the efficacy of a prophylactic vaccine eliciting single Gag241-249 epitope-specific CD8+ T-cell responses against simian immunodeficiency virus (SIV) challenge in macaques.

Methods

We developed a prophylactic vaccine using a Sendai virus vector expressing a single, Mamu-A*90120-5-restricted Gag241-249 CTL epitope fused with EGFP protein. Eighteen Burmese rhesus macaques possessing this MHC-I allele (Mamu-A*90120-5) were divided into three groups of six animals each. Group I received no vaccination, group II a control vaccine expressing EGFP, and group III a vaccine expressing Gag241-249-EGFP fusion protein. All these three groups were challenged intravenously with SIVmac239.

Results

The vaccination resulted in induction of Gag241-249-specific CD8+ T-cell responses in group III animals. After SIV challenge, these vaccinees exhibited significantly reduced peak viral loads, followed by SIV containment at the set-

point. In the acute phase, these animals showed dominant Gag241-249-specific CD8+ T-cell responses with higher effector memory frequencies.

Conclusion

These results demonstrate that single epitope-specific memory CD8+ T cells induced by vaccination could indeed facilitate SIV control after virus exposure, indicating the rationale of a prophylactic vaccine strategy eliciting virus-specific CD8+ T-cell memory for HIV control.