Retrovirology

Poster presentation

P19-30. GTU® as beneficial HIV DNA vaccine vector system

A Männik*, U Toots, R Sikut, K Kaldma, K Kiiver, T Mölder, M Adojaan, A Remm and M Ustav

Address: FIT Biotech Ltd, Tartu, Estonia
* Corresponding author

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

Published: 22 October 2009

Retrovirology 2009, **6**(Suppl 3):P350 doi:10.1186/1742-4690-6-S3-P350

This abstract is available from: http://www.retrovirology.com/content/6/S3/P350

Background

The general objective has been to generate the genetic vaccine vector that assures induction of strong and protective T-cell and B-cell immune responses against the HIV1. We have developed Gene Transport Unit (GTU®) plasmid vector system, which uses bovine papillomavirus type 1 segregation/partitioning and transcription activation functions provided by the viral E2 protein and E2 multimeric binding sites. The GTU® vectors assure high level, targeted and extended expression of the viral antigens for the genetic vaccines.

Methods

We analysed the expression properties of ubiquitous and epidermis specific GTU® vectors in tissue culture as well as in various muscle and skin models. Immunological studies have been performed in different model systems using GTU® vectors that express HIV antigens.

Results

The antigen expression is more than an order of magnitude higher from GTU® vectors compared to regular expression vectors. In accordance with GTU® plasmid maintenance function, the differences in expression levels were greater in later time-points. Use of cell-type specific promoters in GTU® vectors allowed cell-type restricted expression in differentiating epidermis and other tissues. The benefits of GTU® vector system were confirmed in immunological studies in different preclinical animal models in inducing T-cell as well as B-cell specific immune response. We have shown that immunisation with GTU® vectors producing secreted Nef antigen, the antibodies were raised earlier, at higher level and with lower doses of the vaccination vector compared to regular DNA vaccine vectors. The use of GTU® vectors for inducing of the T-cell immune response against the HIV1 has been studied in different animal models. These data confirm that GTU® vector system expressing appropriate antigen sequences and delivered by the electroporation raise specific strong and long-lasting T-cell immune response.

Conclusion

Our data suggest that GTU® vector platform is attractive for development of genetic vaccines against pathogens, like HIV.