Retrovirology

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Poster presentation

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Immunization strategies to elicit mucosal immune response of HIV

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from 2006 International Meeting of The Institute of Human Virology
Baltimore, USA. 17–21 November, 2006

Published: 21 December 2006

Retrovirology 2006, **3**(Suppl 1):P68 doi:10.1186/1742-4690-3-S1-P68

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Since most human immunodeficiency virus (HIV) infection are initiated following mucosal to the virus, the anatomic containment or abortion of an HIV infection is likely to require vaccine-elicited cellular immune response in those mucosal sites. Studing vaccine-elicited mucosal immune responses have been problematic because of the difficulties associated with sampling T lymphocytes from those anatomic compartments. Herpes simplex virus type 1(HSV-1) infects a wide range of cells, including dendritics cells. Consequently, HSV-1 vectors may be capable of eliciting strong immune responses(Both celluar and humoral immune responses) to HIV.

To test this hypothesis, an HSV-1 amplicon plasmid encoding HIV-1 gp120 was constructed and murine immune response to helper virus-free amplicon were evaluated a sing intramuscular injection of HIV:gp120 amplicon (HSV:gp120)elicited Env-specific cellular and humoral immune response. The immune response to HSV:gp120 was durable, with robust cellular and longer humoral response. Finally, HSV: gp120 elicited significant Env-specific cellular immune response even in animals that had been previously infected with wild-type HSV-1 Taking together, these data strongly support the use of helper-free HSV-1 amplicon particles as vaccine delivery vectors to elicit mucosalimmune response of HIV.