Retrovirology

Poster presentation

P19-05. Use of autologous apoptotic pseudovirus infected cells for vaccination against HIV, evaluation in macaques

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Background

Antigen-presenting dendritic cells (DC) present viral antigens to T-cells after uptake of apoptotic bodies derived from virus-infected cells. Besides, processing and presentation of ingested antigen, DC were recently shown to be able to incorporate part of the DNA from the apoptotic cells into their own chromosomes and express the encoded antigens. This mechanism could lead to a more efficient presentation of foreign antigens and activation of antigen specific naive T-cells. It was recently exploited for induction of HIV specific immune responses in a HIV-1/MuLV mouse infection model.

Methods

Here we have evaluated the safety and immunogenicity of this approach in non human primates using autologous activated T-cells infected with replication defective VSV pseudotyped SIVΔenv. Animals were immunized by intradermal injection of 50 to 200 million cells, irradiated with a 150 Gy dose for apoptosis induction prior to immunization.

Results

SIV Gag specific cellular immune responses were induced already after the first immunization in 3 out of 6 animals with a strong bias towards IFNγ and IL-2 production, while no IL-4 production was found. SIV Gag specific antibody responses were observed in five out of six animals.

Conclusion

These finding underscore the potential application of this strategy in therapeutic as well as prophylactic vaccination against HIV-1 as well as other pathogens or as a cancer therapeutic.