Retrovirology

Poster presentation

P16-38. Transient loss of intestinal CD4+CCR5+ lymphocytes following vaccination with live attenuated SIV indicates modification of T cell repertoire/memory

B Li*, R Stebbings, N Berry, M Page, D Ferguson, C Ham, W Elsley, J Hall and N Almond

Address: Division of Biotherapeutics, NIBSC, Potters Bar, UK
* Corresponding author

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

Published: 22 October 2009

Retrovirology 2009, **6**(Suppl 3):P267 doi:10.1186/1742-4690-6-S3-P267

This abstract is available from: http://www.retrovirology.com/content/6/S3/P267

Background

Live attenuated simian immunodeficiency virus (SIV) vaccines provide robust defence against challenge with pathogenic viruses and identification of the mechanisms of protection they confer would facilitate the development of an effective AIDS vaccine. Infection with pathogenic SIV induces profound loss of intestinal CD4+CCR5+ lymphocytes in macaques within 14 days of challenge [1]. Recovery of these intestinal CD4+CCR5+ lymphocytes has been linked with long term non-progression.[2] Here we have investigated the loss of CD4+CCR5+ lymphocytes following infection with live attenuated SIV.

Methods

The frequency of CD4+CCR5+ lymphocytes in the blood, spleen, thymus, lymph nodes and intestine was determined in pairs of cynomolgus macaques sacrificed at 0, 7, 10, 14, 21 and 127 days post immunisation with the minimally attenuated SIVmac251 clone, SIVmacC8.

Results

An early depletion of intestinal CD4+CCR5+ lymphocytes was observed in the intestine within 21 days. However, recovery of those CD4+CCR5+ intestinal lymphocytes was observed by day 127. This recovery of CD4+CCR5+ intestinal lymphocytes is consistent with long term control of attenuated SIV and a report of no depletion in attenuated SIV infected macaques [3]. The observed recovery of intestinal CD4+CCR5+ lymphocytes was associated with an influx of repopulating naive T cells indicating that the T cell repertoire/memory of the gut had been modified by infection with attenuated SIV.

Conclusion

Intestinal CD4+CCR5+ lymphocytes are an early target of SIV infection possibly required for establishment and dissemination of infection. Changes to intestinal CD4+CCR5+ cell populations could therefore impact on the ability of an incoming virus to establish a persistent infection. These observations indicate that profound alteration to immune cell populations occurs after vaccination with live attenuated virus and this could contribute to protection against wild type challenge.

References

1. Veazey , *et al.*: *J Virol* 2000.
2. Ling , *et al.*: *AIDS* 2007.
3. Picker , *et al.*: *JEM* 2004.