Retrovirology

Poster presentation

P04-47. High-titer autologous and heterologous neutralizing antibody activity in acute SIV-infection

B Schweighardt*[1], Z Ma[2], CJ Petropoulos[1], CJ Miller[2] and T Wrin[1]

Address: [1]R&D, Monogram Biosciences, South San Francisco, CA, USA and [2]University of California, Davis, CA, USA
* Corresponding author

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

Published: 22 October 2009

Retrovirology 2009, **6**(Suppl 3):P75 doi:10.1186/1742-4690-6-S3-P75

This abstract is available from: http://www.retrovirology.com/content/6/S3/P75

Background

The role that neutralizing antibodies (NAbs) play in controlling viral replication during early HIV infection is not fully understood. Autologous HIV NAbs are first detected in humans several weeks after peak viremia, suggesting that they are not involved in the initial decrease in viral load. However, it is not clear if these antibodies are present at titers lower than the limit of detection of current assays. To more clearly evaluate this question, we have investigated the development of NAbs in early SIV infection using the macaque model system.

Methods

Six macaques were infected with SIVmac251 via repeated vaginal exposures. Three were exposed to a plasma pool derived from animals infected for 1–6 wks, and three were exposed to a plasma pool from animals infected for 16 wks. SIV envelope genes were amplified from longitudinal plasma samples by RT-PCR. Pseudotyped virions were produced using a replication-defective retroviral vector containing a luciferase gene. The ability of plasma antibodies to neutralize pseudotyped virions was assessed by measuring luciferase activity 72 hrs after viral inoculation.

Results

High-titer heterologous NAb activity was detected in each of the infected macaques. Nabs were detected as early as peak viremia in 2/6 animals, and increased with time in all 6 animals. NAb activity against contemporary autologous viral isolates was detected in 5/6 animals, with the earliest detection at peak viremia in 1/5 animals. Evidence of viral escape from contemporaneous autologous NAbs was detected in 2/5 animals.

Conclusion

Autologous NAb activity was detected in some SIV-infected macaques up to 10 wks earlier than typically found in HIV-infected humans, and antibody titers were an average of 10 fold greater. The detection of autologous NAb activity and subsequent viral escape during the early stages of infection suggests that NAbs may be playing a role in the initial control of viral replication in SIV infection.