Retrovirology

Poster presentation

Redirecting the Specificity of Naturally Occurring Antibodies Using gal-alpha1, 3-gal Coupled to HIV Recognizing Peptides

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Introduction

Due to the great variability and high glycosylation of gp120, possible targets for a fusion inhibitor include the CD4 binding region of gp120. Here we describe a method by which peptides corresponding to residues 25 to 64 of the CD4 receptor have been coupled to a major antigen, the gal-alpha 1,3-gal disaccharide, towards which humans have natural antibodies. Use of these fusion-molecules should redirect the specificity of the antibodies towards gp120 and possibly help reducing the viral loads of infected individuals.

Materials and methods

Binding of human anti gal-alpha 1,3-gal antibody glycopeptide complexes to gp120 and the virus was analysed by ELISA and a neutralization assay. The latter was based on reduction of syncytia in U87 cells in the presence of heat inactivated human serum from healthy individuals. Non-inactivated serum was also used to analyse the contribution of the complement dependent cytotoxicity to the system.

Results

Binding of the molecules was confirmed both by ELISA and by neutralization using the HIV 1 IIIB virus at several concentrations of the peptides with a 1:10 or 1:20 dilution of the human serum. Furthermore, complement proteins contributed to the neutralization capacity of the human anti gal-alpha 1,3-gal antibody- glycopeptide complexes.

Conclusion

Taking advantage of the innate response by redirecting the specificity of natural antibodies could be a complement to existing anti retroviral therapy of HIV infected individuals.