

Poster presentation

PI9-13. Recombinant proteins carrying peptide mimics of HIV-1

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Background

There are a number of monoclonal antibodies possessing neutralizing activity against the broad range of HIV-1 isolates. Some of them recognize conformational epitopes of HIV-1 antigens. Obviously, artificial anti-HIV polyepitope vaccines should induce a necessary spectrum of broadly neutralizing antibodies. Polyepitope TBI protein containing 4 T-cellular and 5 B-cellular linear epitopes from Env and Gag proteins of HIV-1 has been created earlier. Three linear peptides imitating natural HIV-1 conformational 2G12-determinant were selected using phage display and inserted in TBI.

The aim of our work was to study antigenic properties of these mimotopes in the context of newly created TBIs (TBI-1, TBI-2, and TBI-3).

Methods

Phage display was used to select peptides mimicking a HIV-1 gp120 conformational epitope recognized by neutralizing mAb 2G12.

Three linear antigenic determinants were found as a result of three rounds of biopanning. Oligonucleotides coding for these peptides-mimotopes were inserted into the *TBI* gene. Derivatives of TBI protein (TBI-1, TBI-2, TBI-3) containing mimotopes were expressed in *E. coli* and characterized by Western-blot and ELISA. Mice Balb/c were immunized by these recombinant proteins.

Results

The newly created TBIs were shown to react in ELISA and Western-blot with 2G12 mAb, which means that they

maintain original antigenic features of selected mimotopes. The sera of immunized animals recognise in ELISA both peptides-mimotopes for 2G12 as well as native HIV-1 antigen. The study of virus-neutralising activity of sera obtained is planning in the nearest future.

Conclusion

The selected peptides imitating natural epitopes for 2G12 mAb may be proposed as components of polyepitope anti-HIV vaccine.