Retrovirology

Poster presentation

P05-02. Including peptides-mimotopes of neutralizing 2F5 epitope of HIV-1 into artificial peptide TBI – vaccine candidate

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Background

It is convincing evidence that anti-HIV-1 vaccine should elicit broadly neutralizing monoclonal antibodies which neutralize broad range of laboratory and primary isolates of HIV-1. Artificial protein TBI (T and B cell epitopes containing immunogen) which contains 4 T-cell and 5 B-cell epitopes of HIV-1 was created in SRC VB "Vector" in 90-th. Now there is a lot of new information about neutralizing epitopes of HIV-1. It has been known several monoclonal antibodies, which have broad neutralization activities. 2F5 antibody recognizes a core epitope of liner sequence ELDKWA in the ectodomain of gp41 near the transmembrane region. Attempts to create immunogen with natural 2F5 epitope on the basis of various vectors were unsuccessful in the possibility to induce neutralizing antibodies.

One of the perspective approaches in the design of vaccine immunogens represented by phage display technique based method of searching peptides that mimic HIV-1 epitopes.

Methods

Early in our department have been received peptides-mimotopes of 2F5 epitope. It has been shown that mice and rabbits immunized with those peptides elicited antibodies that neutralized laboratory strains of HIV-1.

Results

Two peptides-mimotopes were introduced into artificial TBI protein instead one of the B-cell epitope by gene engineering technique.

Finally, it have been received recombinant proteins TBI-2F5-1 and TBI-2F5-2. These recombinant peptides were characterized by ELISA and Western blot analysis with monoclonal antibodies to HIV-1. Results have shown that the recombinant proteins have kept antigenic properties of the peptides-mimotopes.

Conclusion

Thus, it have been received two recombinant proteins keeping structure of protein TBI and antigenic properties of the peptides-mimotopes. It has been shown that recombinant proteins elicited HIV-specific immune response.