Polyclonal anti-idiotypic antibodies that mimic the «internal image» of turkey herpes virus antigens

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The presentation presents the results of scientific research on the preparation and study of the properties of polyclonal anti-idiotypic antibodies that mimic the "internal image" of the antigens of the Turkey herpes vaccine virus. It is shown that the thermally activated turkey herpes virus antigen has immunogenicity, and the properties of the antibody cascade induced by it indicate the possibility of using as a non-infectious vaccine not only the thermally activated turkey herpes virus, but also second-order anti-idiotypic antibodies that mimic the "internal image" of the infectious turkey herpes virus. The authors developed a technological scheme for obtaining anti-idiotypic antibodies that mimic the" internal image " of the infectious turkey herpes virus.
Materials and methods

We used industrial series of native and dry vaccines against Marek's disease based on the strains of turkey herpes virus FC-126 and FC-126M.

In this work, we used US-lysates of infected chicken embryo cell cultures in the form of preparations based on turkey herpes virus, chicken herpes virus with high cytopathic activity (CPA): initial dry; dry thermodenatured at 100°C for 30 minutes; restored physiological solution to the initial volume (native) and thermodenatured at 100°C for 15 minutes. In this work, we used US-lysates of infected chicken embryo cell cultures in the form of preparations

US-lysates of uninfected chicken embryo cell cultures: dry thermodenatured at 100°C for 30 minutes; native thermodenatured at 100°C for 15 minutes. US-lysates of uninfected epithelial cells of chicken feather follicles.

Experimental animals. Female BALB/c mice were used for immunization with a drug based on MCA 4f6.

When obtaining idiotypic first-order antibodies (AB₁) to non-infectious thermodenatured samples of turkey herpes virus (proteins B and C), guinea pigs of 2 months of age, weighing 350-400 g, were used.

To obtain idiotypic antibodies (AT₁), guinea pigs were immunized according to the following scheme: fractionated thermonactivated viral (turkey herpes virus) and control antigens were mixed with a full Freund's adjuvant in a ratio of 1:1 and injected intramuscularly 0.5 cm³ into the thigh area three times at a weekly interval. 7 days after the last administration, blood sera were taken and antibodies were isolated from them.

To obtain AID AB (AB₂) with antibodies (IgG) of guinea pigs mixed with Freund's adjuvant in a ratio of 1:1, SPF chickens were immunized by 0.2 cm³ intraperitoneally at the daily, 7-day and 14-day age. 7 days after the last administration, blood sera were taken and antibodies were isolated from them.

Monoclonal antibodies MAB 4f6, MAB 2C, directed at the serotype-specific antigenic determinant of the chicken herpes virus strain SB-1.

«Protein B» – the fraction reacting only with the serum obtained on the turkey herpes virus, «protein C» – the fraction cross-reacting with the serum obtained on the turkey herpes virus with the serum obtained on the highly pathogenic strain of Marek's disease virus «Konkur» [4].

The isolation of specific antibodies from blood sera was performed by affinity chromatography on columns 26x40.

The antigenic activity, specificity, and infectivity of the US-lysates were established in the diffusion precipitation reaction (RDP), ELISA (indirect variant) according to generally accepted methods, and the neutralization blocking reaction (RBN).
Conclusions

The thermoinactivated turkey herpes virus antigen has immunogenicity, and the properties of the antibody cascade induced by it indicate the possibility of using as a non-infectious vaccine not only the thermoinactivated turkey herpes virus, but also AID AB-B, simulating the "internal image" of the infectious turkey herpes virus.

We recommend using the developed technological scheme for the preparation of AID AB-B for the production of a non-infectious vaccine preparation against Marek's disease.