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Development of the recombinant polypeptide vaccine for protection against group B streptococcal infection

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Objectives Group B streptococcus (GBS) is an important human pathogen causing newborn mortality and various infection diseases of the elderly. Prevention of the GBS infections is an important challenge for contemporary clinical microbiology. Different vaccine candidates have been developed. However there is no GBS vaccine on the market. The present paper demonstrates the progress in the study of the GBS vaccine based on the surface protein antigens of GBS during its preclinical trials. **Methods** Five recombinant proteins based on surface GBS antigens have been expressed in *E. coli* strain - produces purified by chromatography and immunized into mice or the rabbits with aluminum as adjuvant. All the experiments with the animals have been performed according to the appropriate ethical requirements. Experimental animals were immunized with 20 mcg of total protein mixture twice and then tested for the specific immunoglobulins development and cytokines in blood. Protection studies were performed after GBS belonging to different serotypes was injected intraperitoneally or intranasally. **Results** All five antigens being introduced provided significant IgM response on the 3 day after the first immunization and IgG reached maximum values at the 38-40 day. IgG levels varied depending on the antigen used. Cytokine profile in blood did not change significantly. Only IL-10, IL-22 and IL-17 were determined by ELISA slightly different from controls. Protection study performed against eight GBS most common in Russian serotypes demonstrated protection in all the cases however the effectiveness of vaccine protection varied depending the strain used. **Conclusions** Recombinant GBS five - component vaccine is developed and analyzed for immunogenicity and protection in the animal model. The work was supported by Russian State Contract #14N08.12.0003