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Development of DNA vaccine against H5N1 avian influenza virus

DNA vaccines, also called genetic vaccines, belong to a new generation of vaccines. It is known that DNA injection in the form of a plasmid or in a linear form may lead to induction of an immunological response against antigens coded by the vaccine used. The level of this response, important because of providing protection using the vaccine, depends on many factors. In addition to selection of an adequately strong antigen, ensuring its efficient expression in cells of the immunized body plays a key role. Various strategies are used in order to increase efficiency of DNA vaccines. They are related to modifications of expression cassette, use of various adjuvants, both biological and chemical adjuvants, use of various carriers, various administration routes or immunization in combination with other vaccines. The overview of the approaches used in our laboratory to improve the efficacy of the DNA vaccine against H5N1 virus will be presented. The basal construct used in our work encodes the full length H5 HA, however we have introduced modifications inside and outside of the HA coding region. The efficacy of several variants of such DNA vaccine was tested in two model animals, mice and chickens along with several different adjuvants. In many cases we have observedenhanced expression of the HA antigen and an improved immunological response to the vaccine.

Biography

Agnieszka Sirko is a Professor at the Institute of Biochemistry and Biophysics Polish Academy of Sciences in Warsaw, Poland. Her group is involved in work related to development of DNA vaccine against influenza virus and, in cooperation with other groups, in development of the modern, sensitive and reliable methods of influenza virus detection. She is a member of Polish Vaccine Consortium (PVC).

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