Triterpen saponins isolated from plants indigenous to Kazakhstan as efficient adjuvants for mucosal immunization

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Highly purified low toxicity immunostimulatory triterpen saponins GlabiloxTM and AsgipanTM were isolated from Glycyrrhiza glabra and Aesculus hippocastanum plants indigenous to Kazakhstan. These saponins were used for assembling of immunostimulating nanocomplexes (ISCOMs) contained purified HA and NA influenza virus antigens and for preparation of saponin/lipid particulate SAPOMAX adjuvant. Immunostimulation activity and protection capacity of two kinds of influenza vaccine preparations: subunit vaccine based ISCOMs and whole virus inactivated influenza vaccine contained SAPOMAX adjuvant were studied in mice immunization experiments at intranasal and subcutaneous routes of immunization.

It was shown that single intranasal immunization of subunit vaccine based ISCOMs contained GlabiloxTM or AsgipanTM saponins stimulated high levels of IgM, IgA, IgG1, IgG2a and IgG2b antibody, good production of IL-2, IL-4, IL-10 and IFN-γ cytokines and protected animals against lethal influenza virus infection. Activity of antibody and cytokines production as well as protective immunity after single intranasal immunization of ISCOMs vaccine was comparable with immune responses and protection after subcutaneous administration of vaccine preparation. Whole virus inactivated influenza vaccine mixed with SAPOMAX adjuvant was studied in mice immunization experiments at intranasal route of immunization. It was shown that intranasal immunization of whole virus inactivated influenza vaccine mixed with SAPOMAX adjuvant stimulated high levels of antibody and cellular immune responses and protection against lethal influenza infection.

The results of study have shown that purified triterpen saponins Glabilox™ and Asgipan™ isolated from plants indigenous to Kazakhstan may be used as efficient adjuvants for creation of influenza vaccine preparations intended for mucosal (intranasal) immunization.

Biography

Vladimir Berezin has completed his PhD at the age of 28 years from Ivanovsky Institute of Virology in Moscow (Russia) and postdoctoral studies in same Institute. He was a director of the Institute of Microbiology and Virology in Almaty, Kazakhstan. Currently he is the head of Department of Virology in the Institute of Microbiology and Virology in Almaty, Kazakhstan. V. Berezin has published more than 50 papers in reputed journals and has been serving as an editorial board member. He is Correspondent Member of the National Academy of Sciences of Kazakhstan and member of National Scientific Council of Kazakhstan.

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