Preclinical Study of Immunoactive Properties of Topix Preparation Isolated from Tubers of Jerusalem Artichoke

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In 1990-1995 STC "ARIS" in cooperation with Research Institute of Organic Chemistry, RAS, and Institute of Clinical Immunology, SB of RAMS performed a series of studies to reveal different biological activities of TOPIX preparation manufactured according to patent-protected technologies from tubers of Jerusalem artichoke (*Helianthus tuberosus L*). At its initial stages, the development of the first medical preparation for injections from Jerusalem artichoke was associated with the problems of standardization of the initial raw material and substances produced from it which present a natural complex of polyfructosans (inulin) containing the protein component as well as macro- and microelements. Today the dry substrate for production of a biologically active substance is used independently in medical practice in a form of Jerusalem artichoke concentrate (dry) as a biologically active food additive (STC "ARIS", 1995).

The work was aimed at the study of immunoactive properties of TOPIX in vivo: testing the primary immune response, delayed hypersensitivity, cooperative interaction, mitostatic and lymphotoxic properties, spontaneous and LPS-induced IL-1 production, phagocytic activity. Besides, the preparation effects in vitro on spontaneous synthesis of IgG and LPS-induced IL-1 production, spontaneous and mitogen-induced splenocyte proliferation were evaluated. The preparation was used for in vivo studies in the dose of 0.5 and 25 mkg/mouse (Tactivin preparation was used for comparison in the dose of 0.5 mkg/mouse); in vitro TOPIX was taken at final 1:20, 1:100, 1:500 dilutions of the initial solution (Tactivin was used at analogous dilutions, which corresponded to the concentrations of 0.2; 1.0; 5.0 mkg/ml of medium).

It is found out that at thrice-repeated administration TOPIX produces the most expressed stimulatory effect on cooperative interaction, delayed hypersensitivity (dose-dependent action) and colony formation whereas it produces inhibitory effect on phagocytic activity and IL-1 production. The preparation practically does not affect antibody formation in the spleen, spontaneous synthesis of IgG and mitogen-induced proliferation of splenocytes. It is established that like Tactivin, TOPIX in a wide range of doses stimulates production of factors inhibiting migration of DHS-effectors from peripheral blood if healthy persons.

The above data allowed to conclude that TOPIX preparation primarily affects the cellular block of the immune system and that its immunoactivity is comparable with that of Tactivin thymic preparation.