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Recombinant mycobacterium heat shock protein-70 (rHSP-70) TLR-2, TLR-4 agonist as a perspective tool for protection against bacterial and viral infections and tumors in mice

Vorobiev D.S., Semenova I.B

Mechnikov Research Institute for Vaccine and Sera, Russian Academy of Medical Sciences, Russia

Agonists of TLRs are considered as tools for therapy from different diseases including infections and tumors. The purpose of our work was to estimate the capacity of rHSP-70 to protect mice against *Salmonella enterica* Serovar Typhimurium and influenza virus H5N2 and to decrease tumor growth (melanoma B16). We established that the rHSP-70 induced short-time 50% protection from *S. Typhimurium* and influenza virus H5N2 after single injected doses 100 µg/mice and 400 µg/mice. 3-times inoculation 10 µg/mice of rHSP-70 was led to long-time protection against *S. Typhimurium*. At 21st day (the follow up period) from 50% to 80% mice were alive. 20 µg and 100 µg of rHSP-70 injected to C57Bl/6 mice induced inhibition of tumor growth (melanoma B16) on 65% and 30% respectively at 21st day. Next we demonstrated that the rHSP-70 enhances expression of CD25 and CD56 on membrane of mononuclear leukocytes from peripheral blood of healthy donors but not affect expression of CD4 and CD16. The rising expression of CD25 and CD56 indicated the increase of natural killers and active lymphocytes in the population of lymphocytes. In the present study was shown resistance to bacterial and viral infections and antitumor activity in mice. We suggest that the rHSP-70 may be a candidate for creation of vaccines against multiple pathogens and anticancer tool.

Biography

Dr. Denis Vorobiev has completed his Ph.D at the age of 28 years from Mechnikov Research Institute for Vaccine and Sera (Moscow, Russia) in 2009. At present time he is the scientific worker of Mechnikov Research Institute for Vaccine and Sera. He has published 10 articles.