

Immunology for English-speaking students

1. Immunity - basic regulatory concept. Anatomical basis of the immune system. Cells involved in the immune response. Specific and non-specific immune response. Antigen. Self and non-self. Clinical and laboratory immunological investigations.
2. Factors of the innate immunity - complement, phagocytosis, lysozyme, NK cells, interferon. Inflammation. Acute phase-reaction.
3. B-lymphocytes and immunoglobulins. Biological functions of immunoglobulins. Genetic basis of immunoglobulin heterogeneity. Monoclonal antibodies as diagnostic and therapeutic tools.
4. Serological reactions: agglutination, precipitation, immunoelectrophoresis, immunofixation, turbidimetry, nephelometry, RIA, ELISA, immunofluorescence.
5. T-lymphocytes, their development, effector functions.
6. Investigation of T-lymphocyte subpopulations number and function in vitro (proliferation assays, enumeration of subpopulations of lymphocytes) and in vivo. CD antigens. Investigation of phagocytosis and the complement system.
7. HLA system, HLA typisation. Triggering the immune reaction, interactions between T- and B- lymphocytes and macrophages. Regulation of the immune function, cytokines. Idiotype-antiidiotype network.
8. Immunity against infections. Microbial antigens. Active and passive immunisation. Adjuvants. Mucous membranes associated immune system.
9. Immunodeficiency, immunoglobulin therapy. HIV disease.
10. Autoimmune diseases, concepts of autoimmunity. Immunological tolerance. Autoantibodies and their laboratory detection.
11. Hypersensitivity reactions. Atopic type of hypersensitivity. Allergic diseases. Anaphylactic shock. Allergic skin tests. Treatment of allergic diseases. Cytotoxic and immune complexes-mediated hypersensitivity. Cellular hypersensitivity. Delayed-type hypersensitivity tests.
12. Ontogenesis of the immune system. Immunity in pregnancy. Immune response to malignant tumors. Immunological diagnostics and treatment in oncology.
13. Transfusion immunology. Immunology of transplantation. Immunomodulatory treatment.
14. Consultations, credits.

Prof Jiri Litzman

