EXAM TOPICS FOR THE ORAL EXAM IN 2022/2023

1. The definition of immunity and antigen, the functions and basic principles of the immune system.
2. The structure and the function of the lymphoid organs and tissues.
3. The concept, characteristics and tasks of innate immunity.
4. Cellular elements of innate immunity.
5. Humoral elements of innate immunity.
6. Characteristics of acquired immunity.
7. The organization of the Major Histocompatibility Complex (MHC); the structure and function of the proteins it encodes.
8. Antigen processing and presentation.
9. Maturation and the checkpoints of T and B lymphocytes.
10. Genetic processes of the formation of antigen recognition receptors (TCR and BCR).
11. Antigen recognition of T lymphocytes, the process of T lymphocyte activation.
12. Subtypes of helper T cells and their functions.
13. The formation of regulatory T cells and their functions.
14. Characteristics and functions of cytotoxic T cells.
15. Subtypes of B lymphocytes.
16. Antigen recognition, T cell dependent and independent activation of B lymphocytes.
17. Processes in the germinal center.
18. Structure, isotypes, effector functions of antibodies.
19. Development of immunological memory.
20. Vaccination, active and passive immunization.
21. Members, activation and tasks of the complement system.
22. Inflammation and acute phase response.
23. The concept and development of immunological tolerance. Processes of central and peripheral tolerance.
24. Development of autoimmune diseases, organ-specific and systemic autoimmune diseases.
25. Tumor immunology, tumor antigens and the immune response against them.
26. Immunotherapies in the treatment of tumors.
27. Groups of receptors recognizing the pathogen pattern and their function.
28. Immune responses against extracellular pathogens and escape mechanisms.
29. Immune responses against intracellular pathogens and escape routes.
30. Characteristics, mediators, therapies of type I hypersensitivity (allergic) reaction.
31. The mechanisms and examples of hypersensitivity reactions of type II., III. and IV.
32. Immunological concepts in transplantations, rejection reactions and therapeutic options.
33. Immune privilege, immunology of the mother-fetus relationship.
34. Theoretical background and application of basic immunological methods.