

SYLLABUS

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|-------------------------|-----------------------------------|----------------------|-----------|
| Subject: | <i>Fundamentals of Immunology</i> | | |
| Study Programme: | <i>GM</i> | Study Period: | <i>SS</i> |
| Evaluation: | <i>Exam, 5 credits</i> | Subject Type: | |
| Content: | 28/28 | <i>Total 56</i> | |

Department of Medical and Clinical Microbiology

| <i>Week</i> | <i>Lectures</i> | <i>Practical Lessons</i> |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. 13.02.24 | Introduction to Immunology - history of immunology, immune system, immune mechanisms, immune response RNDr. Marián Sabol, CSc. | Introduction to laboratory diagnostic methods of immunology. Safety in immunological laboratories. |
| 2. 20.02.24 | Cells of immune system RNDr. Marián Sabol, CSc. | Laboratory methods for identification, isolation, and cultivation of immune system cells. CD markers. |
| 3. 27.02.24 | Lymphoid organs, mucosal immune system RNDr. Marián Sabol, CSc. | Structure and function of lymphoid organs and mucosal immune system |
| 4. 05.03.24 | Humoral nonspecific immune mechanism – complement system. MVDr. Vladimír Hrabovský, PhD. | Complement system assays – haemolytic test, measurement of individual complement components (C3, C4). Methods for detection of lysozyme levels. |
| 5. 12.03.24 | Cellular nonspecific immune mechanism – phagocytosis RNDr. Katarína Čurová, PhD. | Evaluation of phagocytic index and phagocytic activity of polymorphonuclear leucocytes. Tests for intracellular killing. |
| 6. 19.03.24 | Main histocompatibility system, transplantation immunity RNDr. Marián Sabol, CSc. | Transplantation tests - detection of HLA antigens, DNA tests, MLC test, anti HLA antibodies, cross match test |
| 7. 26.03.24 | Antigens. Immunoglobulins – structure, genetics, classes RNDr. Marián Sabol, CSc. | Estimation of immunoglobulins concentrations by radial immunodiffusion Detection of immune complexes |

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| 8. 02.04.24 | Immunoglobulins – isotypes, allotypes, monoclonal antibodies RNDr. Marián Sabol, CSc. | Detection of immunoglobulins concentrations by ELISA, nephelometry, western blot |
| 9. 09.04.24 | Tolerance RNDr. Marián Sabol, CSc. | Mechanisms of tolerance. Detection of activation of immune cells. |
| 10. 16.04.24 | Cytokines, adhesive molecules RNDr. Marián Sabol, CSc. | Laboratory methods for measurement of cytokines. Th1 and Th2 profile in diseases. Detection of adhesive molecules. |
| 11. 23.04.24 | Tumour immunity RNDr. Marián Sabol, CSc. | Laboratory diagnosis of tumour antigens. Flow cytometry. Principles of anticancer immunotherapy. |
| 12. 30.04.24 | Autoimmunity, immunodeficiency RNDr. Marián Sabol, CSc. | Detection of autoantibodies and autoreactive T-cells. Laboratory diagnosis of autoimmune diseases associated with HLA system. Laboratory diagnosis of immunodeficiencies. |
| 13. 07.5.24 | Hypersensitivity reactions - I., II., III., IV. Type Credit test. Dr.h.c. prof. MUDr. Leonard Siegfried, CSc. | Laboratory diagnosis of hypersensitive reactions. |
| 14. 14.05.24 | Immunomodulation – immunostimulation, immunosuppression, immunotherapy RNDr. Marián Sabol, CSc. | Retake credit test |

Conditions to be met for getting the credit.

1. 60 % of total points a student may obtain in the credit test.
2. 60 % of total number of points obtainable in three tests during semester.
3. Active participation in practical exercises (demonstration of knowledge related to topic of given practical exercise).
4. Presentation of a seminar work

Dr.h.c. prof. MUDr. Leonard Siegfried, CSc.
The head of Institute