Program of Study : General Medicine

Course : Medical Immunology

Abbreviation : KIM/VAB12

Schedule : 14 hours of lectures

12 hours of exercises

Course Distribution : 5th term, 3th year

Number of Credits : 3

Course Form : Seminars and tutorials

Seminars:

Teachers: prof. MUDr. Mgr. Milan Raška, Ph.D.
prof. MUDr. František Mrázek, Ph.D.
doc. Ing. Eva Kriegová, Dr

Time: **9:15 – 10:45**
Room: LLH - Left Lecture Hall

	Termín	Téma	Vyučující
1	**20.2.2023**	**Introduction, history of immunology, innate immunity mechanisms**	prof. MUDr. Mgr. Milan Raška, Ph.D.
2	**6.3.2023**	**Mechanisms of specific immunity - humoral immunity, antigen, mucosal immunology, epithelial barriers.**	prof. MUDr. Mgr. Milan Raška, Ph.D.
3	**20.3.2023**	**HLA system, antigen processing and presentation, interactions between specific and innate immunity.**	prof. MUDr. Mgr. Milan Raška, Ph.D.
4	**3.4.2023**	**Mechanisms of specific immunity – cellular, NK cells**	prof. MUDr. Mgr. Milan Raška, Ph.D.
5	**17.4.2023**	**Cytokines and other factors involved in immune regulation.**	doc. Ing. Eva Kriegová, Dr
6	**1.5.2023**	**Immune defense against infection and cancer.**	prof. MUDr. Mgr. Milan Raška, Ph.D.
7	**15.5.2023**	**Hypersensitivity reactions as a mechanisms of immune-associated pathologies, final test.**	doc. MUDr. František Mrázek, Ph.D.

Tutorials:

Teachers : prof. MUDr. Mgr. Milan Raška, Ph.D.
doc. MUDr. František Mrázek, Ph.D.
doc. Ing. Eva Kriegová, Dr.

Time: **8:00 – 10:15**
Room: 5.007 –Immunology classroom, TÚ (former Microbiology)

prof. Raška **doc. Kriegová** **prof. Mrázek**

Group	Dates
A	14.2., 21.2, 28.2., 7.3.
B	14.3., 21.3., 28.3., 4.4.

Topic
I. Cellular Immunity prof. MUDr. Mgr. Milan Raška, Ph.D. Indication for laboratory examinations, processing of biological specimens. Laboratory diagnostics of immunodeficiencies I, examination of lymphocyte subpopulations, test of lymphocyte blastic transformation, testing of phagocytosis, laboratory diagnostics of allergic diseases – total and specific IgE, demonstration of selected methods in laboratory. Practically performed methods: - microscopic evaluation of phagocytic assay, - evaluation of ELISPOT test for IFN-γ.
II. Humoral Immunity prof. MUDr. Mgr. Milan Raška, Ph.D. Laboratory diagnostics of immunodeficiencies II, examination of antibodies concentration and complement components, complement function tests. Autoimmunity, autoantibodies testing. Practically performed methods: - immunofluorescence determination of autoantibodies, - radial immunodiffusion method for determination of Ig subclasses, - pipetting the titration series with a multichannel pipette.
III. Molecular biology methods in Immunology, next generation sequencing doc. Ing. Eva Kreigová, Dr. Examination of gene mutations and polymorphism in clinical practice, principles of sequencing and other molecular biological methods, clinical examples, interpretation in

diagnostics.
IV. HLA typing, ensuring of histocompatibility for transplantations, association of HLA with diseases doc. MUDr. František Mrázek, Ph.D. HLA typing – serological and molecular biology approaches, testing of anti-HLA antibodies, immunological aspects of transplantation of solid organs and stem cells, ensuring of histocompatibility match between donor and recipient, HLA-associated diseases.

The tutorials includes excursions into the clinical laboratory, each student must have the coat, slippers and a identification card (badge) !!

Completed by: Credit

Requirements: 100% attendance on all seminars and tutorials, **> 80% of the points in the final test is required** to obtain the credit.

Literature: Rabson A, Roitt IM, Delves PJ (2004): Really Essential Immunology. ISBN 978-1405121156