



Immunology

ECTS: 4.00

SUBJECT MATTER CONTENT

LECTURE

Innate immunity and innate inflammatory defense mechanisms and adaptive immune response, the role of the major histocompatibility complex (MHC) in the immune response. NETosis as an extracellular microbial destruction mechanism. Cytokines and immunology of inflammation. Anti-infection immunity. The role of TLRs in the immune defense mechanisms and anti-infectious. Immunology of vaccinations. Diseases of the immunosystem: primary and secondary immunodeficiency. Overactive Immune system disorders: allergic diseases, allergy to drugs. Autoimmune diseases. Immunopathology of gastrointestinal, kidney, lungs, blood and heart disease. Autoimmune cytopathy and immune-mediated neurological diseases. Immunology of cancer and transplantation. Immunological reproductive disorders. Immunomodulation and the use of cytokines in targeted therapy.

CLASSES

Methods for assessing cellular mechanisms of immune response: isolation of immunocompetent cells, the evaluation function of phagocyte function (including: phagocytosis, NETosis, etc.) and lymphocytes, evaluation of cell surface markers. Methods of assessment of humoral components of the immune response: determination of immunoglobulin levels, complement assessment, determination of immune complexes. Studies immunomorphological in the diagnosis of immune related diseases, diagnosis of atopic allergy in vitro. Flow cytometry in diagnostic studies of the immune system. Molecular biology techniques used in clinical immunology. CLASSES LABORATORY: Blood collection techniques for immunological tests from various animal species. Methods of isolating immunocompetent cells and peripheral blood serum.

TEACHING OBJECTIVE

Presentation of basic knowledge of non-specific and specific cellular and humoral defense mechanisms of animals. Understanding the mechanisms of the immune response, pathologies of the immune system and methods for immunoprophylaxis. Understanding the stages of the course of the examination proceedings in immunology and analysis of results.

DESCRIPTION OF THE LEARNING OUTCOMES OF THE COURSE IN RELATION TO THE DESCRIPTION OF THE CHARACTERISTICS OF THE SECOND LEVEL LEARNING OUTCOMES FOR QUALIFICATIONS AT LEVELS 6-8 OF THE POLISH QUALIFICATION FRAMEWORK IN RELATION TO THE SCIENTIFIC DISCIPLINES AND THE EFFECTS FOR FIELDS OF STUDY:

Symbols for outcomes related to the discipline:

R/WA_P7S+++

Symbols for outcomes related to the field of study:

K.1.+ , A.W10. + , A.U14. + , K.3.+ , K.9.++ , A.U16. + , A.W16. + , B.W6. +++ , A.W4. +++ , C.U3. +++ , C.U2. + , K.8.+ , A.W11. ++ , A.W12. +++ , B.W5. ++ , B.W4. + , A.W13. + , A.U21. +++ , A.U20. + , B.U4. + , B.W1. + , A.W2. +++ , B.U7. +++ , B.U6. +++ ,

Legal acts specifying learning outcomes:

682/2020

Disciplines: Veterinary science

Status of the course: Obligatoryjny

Group of courses: A - przedmioty podstawowe

Code: ISCED 0841

Field of study: Veterinary Medicine

Scope of education:

Profile of education: General academic

Form of studies: full-time

Level of studies: uniform master's studies

Year/semester: 2/4

Types of classes: Lecture, Laboratory classes, Classes

Number of hours in

semester: Lecture: 30.00, Laboratory

classes: 3.00, Classes: 12.00

Language of instruction: Polish

Introductory subject: biology, microbiology

Prerequisites: Requires knowledge of the basic concepts and issues in biology and microbiology

Name of the organisational unit

conducting the course: Katedra

Mikrobiologii i Immunologii Klinicznej

Person responsible for the

realization of the course: dr hab. wet.

Roman Wójcik, prof. UWM

e-mail: brandy@uwm.edu.pl

Additional remarks:

LEARNING OUTCOMES:

Knowledge:

W1 – The student knows and describes the stages of the investigative procedure from the moment of taking the samples to the correct interpretation of the results.

W2 – Student describes and lists non-specific cellular and humoral defense mechanisms and anti-infective immunity.

W3 – The student knows and describes the basic stages of the immune response and methods of non-specific and specific immunoprophylaxis.

W4 – The student describes and lists diseases with an immune basis, primary and secondary immune deficiencies, an overactive immune system and autoimmune diseases.

Skills:

U1 – The student is able to apply techniques of isolation and identification of immunocompetent cells.

U2 – Student assesses the influence of pathogens on cellular and humoral defense mechanisms and anti-infective immunity.

U3 – The student is able to perform and correctly assess the activity of immunocompetent cells and the level of cytokines.

U4 – The student correctly interprets the obtained test results and finds effective methods of prophylaxis and immunotherapy.

Social competence:

K1 –

K2 – The student is able to work and organize work in a group.

K3 – The student is able to work safely with biological material.

TEACHING FORMS AND METHODS:

Laboratory classes(W1;U1;K2;K3;):Obtaining cell fractions from peripheral whole blood from different species of animals by centrifugation using different density gradients.

Obtaining blood serum from peripheral whole blood using known methods.

Classes(W1;W2;W3;W4;U1;U2;U3;U4;K1;K2;K3;):Multimedia presentations and laboratory demonstration of methods for determining immunological parameters

Lecture(W2;W3;W4;U2;U3;U4;K1;):Multimedia presentations

FORM AND CONDITIONS OF VERIFYING LEARNING OUTCOMES:

Lecture (Written exam) - To pass the final exam not less than 65% of possible points should be obtained. The grading is based on the principles described in the faculty procedure "Principles of grading students". A student may take the exam improvement twice. In case of top-down suspension of stationary classes and the need for distance learning, the methods of verifying the achievement of learning outcomes declared in the syllabus, i.e. forms of passing the exam and classes, may change in a manner appropriate to the situation. -

Laboratory classes (Evaluation of the work and cooperation in the group) - Observation and evaluation of the acquired practical skills of working in the laboratory by students. -

Classes (Colloquium test) - One written colloquium is planned per semester, based on which the final grade for the classes is determined. To pass the colloquium, obtaining min. 65% of possible points is necessary. The grading is based on the principles described in the faculty procedure "Principles of grading students". A student may attempt to improve colloquium twice. The condition for receiving the final pass is obtaining a pass from the colloquium held in the course of the classes. In case of top-down suspension of stationary classes and the need for distance learning, the methods of verifying the achievement of learning outcomes declared in the syllabus, i.e. forms of passing the exam and classes, may change in a manner appropriate to the situation. -

BASIC LITERATURE:

1. Gołąb J., Jakóbiński M., Lasek W., Stokłosa T., *Immunologia*, Tom 1, Wyd. Wydawnictwo Naukowe PWN, R. 2020

2. Abbas A.K., Lichtman A.H., Pillai S., *Immunologia. Funkcje i zaburzenia układu immunologicznego*, Tom 1, Wyd. Edra Urban and Partner, R. 2015
3. Vollmar A., Zundorf I., Dingermann T., *Immunologia i immunoterapia*, Tom 1, Wyd. MedPharm Polska, R. 2015

SUPPLEMENTARY LITERATURE:

1. Delves P.J., Martin S.J., Burton D.R., Roitt I.M., *Roitt's Essential Immunology*, Tom 1, Wyd. Wiley-Blackwell, R. 2011
2. D. Male, D.B. Roth, I. Roitt, J. Brostoff, *Immunologia*, Tom 1, Wyd. Edra Urban Partner, R. 2008

