

**Academic programme  
component**

**31.05.01 General Medicine  
programme**

**Б1.0.24 Immunology  
discipline code**

**ASSESSMENT MATERIALS**

**Discipline**

**Immunology**

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### 1. Criteria and assessment of the competencies and their mastery indicators, formed by the discipline (module)

Code and competence name	The code and indicator of competence mastery	Results of training in the discipline (module)			Formative assessment	Interim assessment
		<i>To know</i>	<i>To be able to</i>	<i>To have</i>		
<p><b>ПК-2</b> Can conduct a patient examination in order to determine a diagnosis</p>	<p>ПК-2.1. Collects symptoms, patient's medical history, their full physical examination;            ПК-2.2. Formulates a preliminary diagnosis and draws up a plan for patient's laboratory and instrumental examinations, sends them to laboratory and instrumental examinations in accordance with formative clinical recommendations (treatment protocols) and standards of medical care;            ПК-2.3. Taking into account the examination data, performs a differential diagnosis of the disease, determines a diagnosis in accordance with the ICD, if necessary,</p>	<p>1. Methods of assessing various components of the immune system, signs for and principles of the immune status tests; age-related features of the children's immune system.            2. The main types of immunopathology (immunodeficiency disorder, autoimmune, allergic, and lymphoproliferative diseases), the main methods of the immunodiagnosis.</p>	<p>1. Substantiate the need for clinical and immunological examination of the patient, to interpret the results of the immune status assessment according to the level 1 tests. Interpret the results of the main diagnostic allergy tests. 2. Prove the nature of the immunopathological process, its clinical signs, and principles of the pathogenetic therapy; to justify the need for clinical and immunological examination.</p>	<p>1. Skills in taking the immunological and allergy history, analysing and interpreting laboratory results of the immune system assessment from the level 1 tests.            2. Skills of determining the diagnosis based on the results of the patient's laboratory and instrumental examination.</p>	<p>- a set of tasks for practical work;            - tests;            - report topics.</p>	<p>Formative assessment results</p>

	<p>sends the patient to a hospital for specialized medical care.</p> <p>ПК-2. 4. Conducts the necessary types of examinations, analyses the results, formulates a diagnosis for the under-age patients;</p>					
<p><b>ПК-3</b> Can treat patients with various nosological forms</p>	<p>ПК-3.1. Develops a treatment plan for diseases and injuries in accordance with formative medical care procedures (treatment protocols, standards of medical care), including for the under-age patients;</p> <p>ПК-3.2. Prescribes medications, non-drug treatment, medical devices and clinical nutrition, taking into account the diagnosis, age (under-aged, the elderly) and the disease pattern, evaluates the effectiveness and safety of the treatment</p>					

## 2. Competencies mastery (indicators of the mastery) level assessment

Competency mastery (their indicators indices)	The scale and criteria for assessing the level of competence formation (indicators of their achievement)			
	Insufficient ( <i>"unsatisfactory"</i> )	Sufficient ( <i>"satisfactory"</i> )	Above average ( <i>"good"</i> )	Advance ( <i>"excellent"</i> )
<b>Extent of knowledge</b>	Knowledge level is below the required. Major mistakes occurred.	Minimally allowed knowledge level. Minor mistakes occurred.	Knowledge level corresponds well to the educational programme. Insignificant mistakes occurred.	Knowledge level corresponds well to the educational programme.
<b>Ability mastery</b>	Basic abilities were not demonstrated during standard tasks completion. Major mistakes occurred.	Basic abilities were demonstrated. Standard tasks were completed with no major mistakes. All tasks were completed, yet not in full (clarifications are absent, conclusions are incomplete).	All main skills were demonstrated. All the main tasks have been completed with some errors. All tasks were completed in full, yet with few errors.	All main skills were demonstrated. All main and additional tasks were completed without mistakes or errors. The tasks were completed in full without any defects.
<b>Skill mastery (having experience)</b>	Basic skills were not demonstrated during standard tasks completion. Major mistakes occurred.	A minimum set of skills for standard tasks completion, with minor error, is acquired.	Basic skills were demonstrated in completing standard tasks, yet with few errors.	All main skills were demonstrated. All main and additional tasks were completed without mistakes or errors. A creative approach to solving non-standard tasks was demonstrated.
<b>Competence mastery characteristics</b>	Competencies have not been acquired. The acquired knowledge, skills, and abilities are not enough to solve practical (professional) tasks. or Insufficient number of credit points as per the established range.	Competencies mastery is adequate. The acquired knowledge, abilities, and skills are mostly sufficient to complete professional tasks. or The sufficient number of credit points has been scored according to the set range.	Competencies mastery mainly satisfies the requirements. The acquired knowledge, abilities, and skills are mainly sufficient to complete professional tasks. or The sufficient number of credit points has been scored according to the set range.	Competencies mastery satisfies the requirements to the full extent. The acquired knowledge, abilities, and skills are fully sufficient to complete difficult professional tasks, including non-standard. or The sufficient number of credit points has been scored according to the set range.

### 3. Criteria and grading system of the formative assessment tasks

#### 3.1 Criteria and grading system of practical tasks

The list of practical tasks, task completion and presentation recommendations, requirements for results, structure, and contents of practical task report, etc., are presented in methodological guidelines on mastering the discipline as well as in MAU LMS Moodle.

Grade/points	Assessment criteria
<i>Excellent</i>	The task is completed correctly and in full. The laboratory report is well-prepared and satisfies the requirements. Answers to the teacher's questions (during the presentation) are full.
<i>Good</i>	The task is completed in full, yet without sufficient justification or a minor error, which does not impact the argumentation sequence, occurred. All task completion requirements are satisfied.
<i>Satisfactory</i>	The task is completed partially, with mistakes. Adequate level of completed laboratory or practical tasks. Majority of task completion requirements are satisfied.
<i>Unsatisfactory</i>	The task is not been completed.

#### 3.2 Criteria and grading system of tests

The list of test questions and tasks, as well as test procedure description are presented in the methodological guidelines on mastering the discipline, as well as in MAU LMS Moodle.

Assessment materials include a typical test variant:

1. Who is the "father" of the immunology?  
**I.I. Mechnikov**
2. The mechanism of eliminating the genetically foreign substances is called ...  
**... immunity**
3. Phagocytosis, antigen presentation, cytokine synthesis are the main functions of ...  
**... macrophages**
4. The thymus and bone marrow are the central organs of ...  
**... the immune system**
5. The cascade system of the blood serum capable of causing cell lysis is called ...  
**... the complement system**
6. For B lymphocytes, the final stage of differentiation is ...  
**... a plasma cell**
7. Which of the cells mature in the thymus?  
**T-lymphocytes**
8. The CD8 molecule is a marker of ...  
**... the cytotoxic T cells**
9. Mucosal immunoglobulin - ...  
**... IgA**
10. The differences between classes of immunoglobulins is determined by ...  
**H – heavy chains**
11. Lysozyme, the complement system - ... factors of natural resistance  
**... humoral ...**
12. The part of the antigen molecule interacting with the antigen-binding centre of antibodies or T-cell receptor is called ...  
**... the antigenic determinant**

13. The specialized lymphoid organ in which most of the T-lymphocytes undergo lymphopoiesis is called ...

... **thymus**

14. The body's own antigens are called ...

... **autogenic**

15. The property of an antigen to elicit an immune response is called ...

... **immunogenicity**

16. Name the main property of the NK cell:

**1. Antibody-independent lysis of target cells**

2. Antigen recognition

3. Production of immunoglobulins

4. Histamine synthesis

17. The granules of cytotoxic lymphocytes contain:

1. Histamine

**2. Granzymes – serine proteases and perforin**

3. Serotonin

4. Prostaglandins

18. What is used to enhance the immune response to the injection of an antigen:

1. Selectins

**2. Adjuvants**

3. Anaphylatoxins

4. A complement

19. The adaptive immune response involves:

1. Red blood cells

2. Osteocytes

**3. Lymphocytes**

4. Adipocytes

20. The leading role in antiviral immunity is played by

**1. T-immune system**

2. B-the immune system

3. The complement system

4. Non-specific protection factors

Grade/points	Assessment criteria
<i>Excellent</i>	90-100% of correct answers
<i>Good</i>	70-89% of correct answers
<i>Satisfactory</i>	50-69% of correct answers
<i>Unsatisfactory</i>	49% or less of correct answers

### 3.3. Criteria and grading system of the report

The topics of the reports on the discipline (module), the requirements for the structure and contents are set out in the methodological guidelines for the discipline (module), and presented within the electronic course at the MAU LMS Moodle.

Assessment materials include the exemplary topic for the report:

1. The main achievements of immuno-biotechnology.
2. The founders of immunology.
3. Immunological aspects of transplantation.
4. Methods of studying cytokines.

5. Methods of studying T-cell immunity.
6. Interferons. Nature, classification, biological properties, and potential.
7. Immunological aspects of reproduction.
8. Immunity and tumor process.
9. The molecular basis of intercellular interactions in the immune system.
10. The interrelations of the immune, nervous and endocrine systems.
11. Antiviral and antifungal immunity. Mechanisms of virus evasion from recognition and destruction by the immune system.
12. Antibacterial immunity. The mechanisms of bacteria escaping recognition and destruction by the immune system.
13. Thymic hormones and their synthetic analogues (drugs, mechanism of action, biological effects, prospects for the development of new drugs).
14. Primary immunodeficiency. Aetiology, pathogenesis, classification, diagnosis, and treatment.
15. HIV infection and AIDS. Aetiology, pathogenesis, classification, diagnosis, and treatment.
16. Allergopathology: the role of genetic and environmental factors.
17. Problems of the preventive vaccination.
18. New methods for the treatment of autoimmune diseases: outlook.

<b>Grade/points</b>	<b>Assessment criteria</b>
<i><b>Excellent</b></i>	All the requirements for the report writing and presentation are fulfilled: the problem is identified, and its relevance justified, a brief analysis of various points of view on the problem under consideration is made and one's own position is logically stated, conclusions are formulated, the topic is fully disclosed, the volume is maintained, the requirements for the structure are met, correct answers to additional questions are given.
<i><b>Good</b></i>	The basic requirements for the report and its presentation are fulfilled, but there are few errors. In particular, there are inaccuracies in the presentation of the material; there is no logical consistency in judgments; the volume of the report is not maintained; there are omissions in the structure; incomplete answers are given to additional questions during the presentation.
<i><b>Satisfactory</b></i>	There are significant deviations from the requirements for the report. In particular, the topic is only partially covered; factual errors were made in the content of the report or in answering additional questions; there is no conclusion during the presentation.
<i><b>Unsatisfactory</b></i>	The topic of the report is not disclosed, and there is a significant misunderstanding of the problem.

### 3.4. Criteria and grading system of the class attendance

Student attendance is determined in percentage correlation

<b>Points</b>	<b>Assessment criteria</b>
20	attendance 75-100%
17	attendance 50-74%
14	Attendance is less than 50%

**4. Criteria and grading system of the discipline (module) results during the interim assessment**

Criteria and grading system of the discipline (module) results (credit)

If the student has enough credit points according to the established range of discipline (module), then they pass the discipline.

Grade	Points	Assessment criteria
<i>Pass</i>	60-100	The credit points are scored according to the set range
<i>Fail</i>	less than 60	The credit points have not been scored according to the set range

**5. Diagnostic tasks for the assessment of the educational results in the discipline (module) within the framework of internal and external independent assessment of the quality of education**

Assessment materials contain tasks for assessing knowledge, skills and abilities that demonstrate the level of competence mastery and indicators of their mastery.

The set of tasks is designed to assess each competence in written form.

The set of tasks includes: *multiple-choice test and test with detailed answer.*

**Set of tasks for diagnostics**

<b><i>IIK-2 Can conduct a patient examination in order to determine a diagnosis</i></b>	
	<p>1. What reaction is used to identify incomplete antibodies?  <b>Coombs test</b></p> <p>2. Low molecular weight proteins secreted by activated lymphocytes and macrophages, which are mediators of inflammation and immune response, are called ...  <b>... cytokines</b></p> <p>3. The immunoglobulins predominant in the secondary immune response are called ...  <b>... Ig G</b></p> <p>4. The main membrane marker of T-helpers is ...  <b>... CD-4</b></p> <p>5. The body's own antigens are called ...  <b>... autogenic</b></p> <p>6. The property of the antigen to cause an immune response is called ...  <b>... immunogenicity</b></p> <p>7. The specificity of the antigen is mainly determined by:</p> <ol style="list-style-type: none"> <li>1. Class of organic matter</li> <li><b>2. Antigenic determinant (epitope)</b></li> <li>3. Part of an antigenic molecule (carrier)</li> <li>4. The dose of the antigen</li> </ol> <p>8. Subpopulations of B lymphocytes are called:</p> <ol style="list-style-type: none"> <li>a. B1 cells</li> <li>b. B2 cells</li> <li>c. B cells of the marginal zone</li> <li><b>d. all of the above</b></li> </ol> <p>9. The agglutination reaction is used for (2 answers):</p>



	<ul style="list-style-type: none"> <li>a. immunotherapy</li> <li><b>b. serodiagnostics of infectious diseases</b></li> <li>c. seroprophylaxis</li> <li>d. preventive vaccination</li> <li><b>e. antibody detection</b></li> </ul> <p>10. Proteins of the acute phase of the infectious process are called ...</p> <ul style="list-style-type: none"> <li><b>a. C-reactive protein</b></li> <li>b. isoantigen</li> <li>c. autoantigens</li> <li><b>d. 4. immunoglobulins</b></li> </ul>
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***ΠΚ-3 Can treat patients with various nosological forms***

	<p>1. Which kind of immunity is developed once an antitoxic serum is injected?  <b>... artificial passive</b></p> <p>2. Immunoglobulins of the ... class are an indicator of acute infection.  <b>... M</b></p> <p>3. Which immunoglobulin synthesis is increased in patients with atopic bronchial asthma?  <b>IgE</b></p> <p>4. The bactericidal effect of blood is caused by the presence of ...  <b>... complement</b></p> <p>5. The main genes of the histocompatibility complex in humans is indicated by ...  <b>... HLA</b></p> <p>6. Bruton disease is</p> <ul style="list-style-type: none"> <li>A. one of the sign of AIDS</li> <li>Б. congenital T-cell deficiency</li> <li>B. complement system defect</li> <li><b>Г. congenital B-cell deficiency</b></li> </ul> <p>7. What is used to enhance the immune response to the introduction of an antigen?</p> <ul style="list-style-type: none"> <li>A. selectins</li> <li><b>Б. adjuvants</b></li> <li>B. anaphylatoxins</li> <li>Г. complement</li> </ul> <p>8. Severe combined immunodeficiency (SCID) is an example of ...</p> <ul style="list-style-type: none"> <li>A. primary immunodeficiency of the T-immune system</li> <li>Б. primary immunodeficiency of the B - immune system</li> <li><b>Б. combined immunodeficiency of T- and B-systems</b></li> <li>Г. deficiency of the complement system</li> </ul> <p>9. A clinical example of type IV hypersensitivity is:</p> <ul style="list-style-type: none"> <li>A. serum disease</li> <li><b>Б. contact dermatitis</b></li> <li>B. systemic lupus erythematosus</li> <li>Г. pollen fever</li> </ul> <p>10. People with bronchial asthma and other chronic lung diseases are recommended to be vaccinated against:</p> <ul style="list-style-type: none"> <li>A. Hepatitis A and B</li> <li>B. meningococcal and HIB infections</li> <li><b>Б. influenza and pneumococcal infection</b></li> <li>G. Chickenpox and hepatitis B</li> </ul>
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