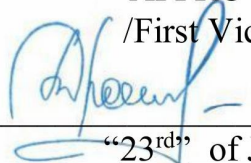


Документ подписан простой электронной подписью  
Информация о владельце:  
ФИО: Стегний Кирилл Владимирович  
Должность: И.о. ректора  
Дата подписания: 25.09.2026 05:37:43  
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Federal State Budget Educational Institution of Higher Education  
«Pacific State Medical University»  
of the Ministry of Health of the Russian Federation

APPROVED BY

/First Vice-Rector

 / Dvoynikova E.R./  
“23<sup>rd</sup>” of June 2026

## WORKING PROGRAM OF DISCIPLINE (MODULE)

### B1.C.13 IMMUNOLOGY – CLINICAL IMMUNOLOGY

| Title of discipline               |                                                                                                                                                                                   |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Specialty</b>                  | 31.05.03 Dentistry for the preparation of international students (network educational program, language of instruction is English, by People's Republic of China)<br>(code, name) |
| <b>Level of training</b>          | specialty                                                                                                                                                                         |
| <b>Specialization of training</b> | 02 Healthcare<br><br>in the field of medical care for dental diseases                                                                                                             |
| <b>Form of training</b>           | full-time                                                                                                                                                                         |
| <b>Term of study</b>              | <b>5 years</b><br>(standard duration of study)                                                                                                                                    |
| <b>Department</b>                 | Clinical Laboratory Diagnostics,<br>General and Clinical Immunology                                                                                                               |

The working program of discipline (module) **B1.C.13 IMMUNOLOGY – CLINICAL IMMUNOLOGY** is based on:

- 1) FSES HE in the direction of training (specialty) 31.05.03 Dentistry, Order No. 984 of August 26, 2020, approved by Ministry of Science and Higher Education of the Russian Federation
- 2) Curriculum for the 31.05.03 Dentistry for foreign students (English-language program), profile 02 "Healthcare" (in the field of providing health care in patients with dental pathology), approved by the Academic Council of FSBEI HE PSMU of the Ministry of Health of Russia Report No. 1-7/25-26 dated March 27, 2026..

The working program of the discipline is developed by the author's team of the Department of Clinical Laboratory Diagnostics, General and Clinical Immunology of FSBEI HE PSMU of MOH of Russia, under the guidance of the head of the department, Professor, Dr.Sci (Medicine) Prosekova E.V.

**Developers:**

|                    |                            |                |
|--------------------|----------------------------|----------------|
| Head of department | Dr. Sci (Medicine),        | Prosekova E.V. |
| (position)         | professor                  |                |
|                    | (academic degree, academic | (Full name)    |
|                    | title)                     |                |

## 1. GENERAL PROVISIONS

### 1.1. Purpose and objectives of mastering the discipline (module) B1.C.13 IMMUNOLOGY – CLINICAL IMMUNOLOGY

**The purpose** of mastering the discipline (module) is to :

acquaint students with modern ideas about the structural organisation and principles of functioning of the human immune system at the cellular and molecular levels, adaptive and acquired defence mechanisms, etiology and pathogenesis of immunopathological processes, including immune-dependent and allergic diseases, as well as modern methods of clinical, laboratory and instrumental diagnostics, traditional and innovative directions in the prevention, treatment and rehabilitation of patients in dental practice

**Tasks** of mastering the discipline (module):

1. Acquisition of basic knowledge of fundamental sections of general, special and clinical immunology on the structure and mechanisms of functioning and regulation of the human immune system, necessary for understanding the pathology of the immune system;

2. Formation of skills and abilities about the impact of environmentally harmful factors on the immune system (immunoecology), study of scientific literature and official statistical reviews; principles of modelling normal and pathological immune processes at the body, cellular and molecular levels;

3. Acquisition of basic knowledge and formation of skills on mechanisms of development and immunopathogenesis of immunodeficiency, autoimmune and other diseases of the immune system and principles of immunocorrective therapy; basic methods of experimental immunology, methods of assessment of human immune status and detection (immunodiagnostics) of immune disorders.

### 2. THE PLACE OF THE DISCIPLINE (MODULE) IN THE STRUCTURE OF THE BASIC EDUCATIONAL PROGRAM

Discipline **B1.C.13 IMMUNOLOGY – CLINICAL IMMUNOLOGY** belongs to the obligatory part of the basic educational program 31.05.03 Dentistry for the preparation of international students (network educational program, language of instruction is English, by People's Republic of China) and is studied in semester 3.

### 3. PLANNED LEARNING OUTCOMES OF THE DISCIPLINE (MODULE)

3.1. Mastering the discipline **B1.C.13 IMMUNOLOGY – CLINICAL IMMUNOLOGY** is aimed to the formation of competencies in students. The discipline provides the formation of competencies of students, depending on the types of professional activity tasks.

| Name of the category (group) of general professional competences | Code and name of the general professional competence of the graduate                                                                           | Indicators of achievement of general professional competence                                                                                                                                                                                                                           |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General professional competences</b>                          |                                                                                                                                                |                                                                                                                                                                                                                                                                                        |
| Basics of fundamental and natural science knowledge              | GPC-9. Able to evaluate morphofunctional, physiological conditions and pathological processes in the human body to solve professional problems | CAI.GPC-9 <sub>1</sub> assesses the morphofunctional state of organs<br>CAI.GPC-9 <sub>2</sub> distinguishes between pathological and physiological processes, determines the etiology of changes<br>CAI.GPC-9 <sub>3</sub> provides a diagnostic assessment of the changes identified |

3.2. Types of professional activity on the basis of competences formed during realization of discipline **B1.C.13 IMMUNOLOGY – CLINICAL IMMUNOLOGY**:

Type of professional activity tasks

1. *Medical*

Kind of professional activity tasks

1. *Diagnostic activity*

3.3. Planned learning outcomes of the discipline (module) are expressed in knowledge, skills, skills and (or) experience of activity, characterize the stages of competence formation and ensure achievement of planned results of mastering the basic educational program. Learning outcomes of the discipline are correlated with the indicators of competencies achievement.

#### 4. SCOPE AND CONTENT OF THE DISCIPLINE (MODULE)

4.1. The scope of the discipline (module) and types of academic work

| Type of academic work                                  |            | Total hours | Semesters |
|--------------------------------------------------------|------------|-------------|-----------|
|                                                        |            |             | 4         |
|                                                        |            |             | hours     |
| 1                                                      |            | 2           | 4         |
| <b>Auditorium classes (total), including:</b>          |            | 72          | 72        |
| Lectures (L)                                           |            | 18          | 18        |
| Practical classes (PC)                                 |            | 54          | 54        |
| <b>Individual work of the student (IW), including:</b> |            | 36          | 36        |
| <i>Preparation of presentation (PP)</i>                |            | 18          | 18        |
| <i>Class preparation (CP)</i>                          |            | 8           | 8         |
| <i>Preparation for current control (PCC)</i>           |            | 6           | 6         |
| <i>Preparation for interim assessment (PIA)</i>        |            | 4           | 4         |
| <i>Interim assessment</i>                              |            |             |           |
| <b>Type of interim assessment</b>                      | Credit (C) | C           | C         |
|                                                        | Exam (E)   |             |           |
| <b>TOTAL: Total labour intensity</b>                   | Hours      | 108         | 108       |
|                                                        | Credits    | 3           | 3         |

4.2. Content of the discipline

4.2.1. Topics of lectures and number of hours by semesters of study of discipline (module)

| №          | Lecture topics                                                                      | Hours |
|------------|-------------------------------------------------------------------------------------|-------|
| 1          | 2                                                                                   | 3     |
| Semester 3 |                                                                                     |       |
| 1.         | Introduction to general immunology.                                                 | 2     |
| 2.         | Structural and functional organization of the immune system.                        | 2     |
| 3.         | Innate immune response.                                                             | 2     |
| 4.         | Adaptive immunity.                                                                  | 2     |
| 5.         | Cell interaction in the immune response.                                            | 2     |
| 6.         | Introduction to clinical immunology. Methods of investigation of the immune system. | 2     |

|    |                                                                       |    |
|----|-----------------------------------------------------------------------|----|
| 7. | Immunopathology and diseases of the immune system.                    | 2  |
| 8. | Allergy and allergic reactions in the clinical practice of a dentist. | 2  |
| 9. | Basics of immunotherapy in dentistry.                                 | 2  |
|    | Total semester hours                                                  | 18 |

4.2.2. Topics of practical classes and number of hours by semesters of study of discipline (module)

| №          | Topics of practical classes                                                                                                       | Hours |
|------------|-----------------------------------------------------------------------------------------------------------------------------------|-------|
| 1          | 2                                                                                                                                 | 3     |
| Semester 3 |                                                                                                                                   |       |
| 1          | Introduction to immunology and features of immunological reactivity in different periods of human life                            | 4     |
| 2          | Cellular basis of the immune system                                                                                               | 4     |
| 3          | Humoral factors of innate and adaptive immunity                                                                                   | 4     |
| 4          | Hormones, cytokines and mediators of the immune system as factors of immune response regulation                                   | 4     |
| 5          | Immunological mechanisms of oral cavity defense                                                                                   | 4     |
| 6          | Genetic control of immune response                                                                                                | 2     |
| 7          | Autoimmune pathology                                                                                                              | 2     |
| 8          | Antineoplastic immunity.                                                                                                          | 2     |
| 9          | The transplantation immunology                                                                                                    | 2     |
| 10         | Module 1 «General immunology» assessment                                                                                          | 4     |
| 11         | Introduction to clinical immunology                                                                                               | 2     |
| 12         | Diseases of the immune system, HIV infection and its features.                                                                    | 2     |
| 13         | Primary and secondary immunodeficiency states: features, causes, mechanisms of development, clinical manifestations and diagnosis | 4     |
| 14         | Allergy and allergic reactions in dental practice                                                                                 | 4     |
| 15         | Drug allergy and its manifestations, including anaphylactic shock, in the practice of a dentist                                   | 4     |
| 16         | Basics of immunotherapy in dentistry                                                                                              | 2     |
| 17         | Module 2 «Clinical immunology» assessment                                                                                         | 4     |
|            | Total semester hours                                                                                                              | 54    |

4.2.3. Individual work of the student

| №          | Name of the section of the academic discipline                                                                                       | Types of IW                                 | Total hours |
|------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-------------|
| 1          | 2                                                                                                                                    | 3                                           | 4           |
| Semester 3 |                                                                                                                                      |                                             |             |
| 1          | The concept of immune supervision. The role of the immune system in the regulation of homeostasis and in interaction with other body | Preparation of presentations for the report | 2           |

|    |                                                                                                                                                                    |                                             |    |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----|
|    | systems                                                                                                                                                            |                                             |    |
| 2  | Mucous tissues and skin, their role in the immune system. The concept of «mucosal immune solidarity»                                                               | Preparation of presentations for the report | 2  |
| 3  | Phylogenesis of thymus and T-lymphocytes. Age-related changes in T-cell subpopulations                                                                             | Class preparation                           | 2  |
| 4  | Cytokines and tissue regeneration, their role in wound healing of skin, and mucous membranes. Cytokine therapy: areas of application, advantages and disadvantages | Preparation for current control             | 2  |
| 5  | The role of interferons in the implementation of antiviral and antineoplastic immunity                                                                             | Preparation of presentations for the report | 2  |
| 6  | The role of secretory IgA in the pathology of maxillofacial region                                                                                                 | Class preparation                           | 2  |
| 7  | Significance of the main histocompatibility complex: for transplantology, identification, forensic medicine and veterinary medicine, anthropology.                 | Preparation of presentations for the report | 2  |
| 8  | Ways of resolving incompatibility of donor and recipient tissues                                                                                                   | Preparation of presentations for the report | 2  |
| 9  | Autoimmune diseases of the oral cavity and their impact on dental health                                                                                           | Preparation of presentations for the report | 2  |
| 10 | Relationship between parodontitis and autoimmune inflammation                                                                                                      | Preparation for interim assessment          | 2  |
| 11 | Manifestations of HIV infection in the oral cavity, maxillofacial region                                                                                           | Preparation for current control             | 2  |
| 12 | Immunodeficiency states in the oral cavity: causes, symptoms, diagnosis and treatment                                                                              | Preparation of presentations for the report | 2  |
| 13 | Allergic reactions of the oral cavity in dental practice                                                                                                           | Preparation of presentations for the report | 2  |
| 14 | Clinical manifestations of pseudoallergic reactions to drugs                                                                                                       | Class preparation                           | 2  |
| 15 | Methods of specific diagnostics of drug allergy in vivo. Indications for carrying out. Evaluation of results.                                                      | Preparation of presentations for the report | 2  |
| 16 | Differential diagnosis of anaphylactic shock and anaphylactoid reaction                                                                                            | Preparation for current control             | 2  |
| 17 | Principles of immunomodulatory therapy in dentistry                                                                                                                | Class preparation                           | 2  |
| 18 | Algorithm of emergency care for anaphylactic shock in dental practice                                                                                              | Preparation for interim assessment          | 2  |
|    | Total semester hours                                                                                                                                               |                                             | 36 |

## 5. CONDITIONS OF REALIZATION OF THE DISCIPLINE (MODULE)

### 5.1. Educational-methodical and informational support of the discipline (module)

#### Main literature

| n/<br>№ | Name,<br>type of resource      | Author(s)/editor  | Output data, e-<br>mail address | Number of<br>copies<br>(accesses)<br>In library |
|---------|--------------------------------|-------------------|---------------------------------|-------------------------------------------------|
| 1       | 2                              | 3                 | 4                               | 5                                               |
| 1       | Immunology : textbook (e-book) | Rakhim M. Khaitov | М. : ГЭОТАР-Медиа, 2022. - 272  | Unlimited access                                |

|   |                                                                                           |                                                                                     |                                                                               |                     |
|---|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------|
|   |                                                                                           |                                                                                     | с. - ЭБС<br>«Консультант<br>студента»                                         |                     |
| 2 | Medical Microbiology,<br>Virology and Immunology<br>Lecture Notes : textbook (e-<br>book) | M. N. Artamonova,<br>N. I. Potaturkina-<br>Nesterova, N. A.<br>Ilyina, I.S. Nemova. | - М. : ГЭОТАР-<br>Медиа, 2021. - 352<br>с. - ЭБС<br>«Консультант<br>студента» | Unlimited<br>access |

#### Additional literature

| n/<br>№ | Name,<br>type of resource                                             | Author(s)/edito<br>r            | Output data, e-mail<br>address                                          | Number of<br>copies<br>(accesses)<br>In library |
|---------|-----------------------------------------------------------------------|---------------------------------|-------------------------------------------------------------------------|-------------------------------------------------|
| 1       | 2                                                                     | 3                               | 4                                                                       | 5                                               |
| 1       | Medical Microbiology,<br>Virology, Immunology :<br>textbook. Vol. 1   | . V. Zverev, M.<br>N. Boichenko | М. : ГЭОТАР-Медиа,<br>2020. 392 с.<br>- ЭБС «Консультант<br>студента»   | Unlimited<br>access                             |
| 2       | Medical Microbiology,<br>Virology, Immunology :<br>textbook : Vol. 2. | . V. Zverev, M.<br>N. Boichenko | М. : ГЭОТАР-Медиа,<br>2024. - 560 с.<br>- ЭБС «Консультант<br>студента» | Unlimited<br>access                             |

1. Internet resources
2. ELS "Student's Consultant" <http://studmedlib.ru/>
3. ELS "University Library Online" <http://www.biblioclub.ru/>
4. ELS "Urait" <https://urait.ru/>
5. ELS "BookUp" <https://www.books-up.ru/>
6. Own resources of FSBEI HE PSMU of MOH of Russia <https://tgmu.ru/university/bibliotechno-informacionnyj-centr/resursy-bic/sobstvennye/>

Internet resources and instructions for their use are placed on the page of the Library and Information Center [Library and Information Center - TSMU \(tgmu.ru\)](http://tgmu.ru).



#### 5.2. Material and technical support of educational discipline (module)

Information about material and technical support of the discipline is placed on the page of the official website of the University [Material and technical support and equipment of the educational process. Pacific State Medical University of the Ministry of Health of the Russian Federation \(tgmu.ru\)](http://tgmu.ru)



**5.3. List of information technologies used for the implementation of the educational process in the discipline (module), information and reference systems, licensed and freely distributed software, including domestic production:**

1. PolycomTelepresence M100 Desktop Conferencing Application (VCS)
2. SunRav Software tTester
3. 7-PDF Split & Merge
4. ABBYYFineReader
5. Kaspersky Endpoint Security
6. INDIGO Online Testing System
7. Microsoft Windows 7
8. Microsoft Office Pro Plus 2013
9. 1C:University
10. Garant
11. MOODLE (modular object-oriented dynamic learning environment)

**6. PECULIARITIES OF REALIZATION OF DISCIPLINE FOR STUDENTS WITH DISABILITIES AND DISABLED PEOPLE**

**6.1. Availability of appropriate conditions for the realization of the discipline**

For students from among the disabled and persons with disabilities (PWD) on the basis of a written application the discipline is realized taking into account the peculiarities of psychophysical development, individual capabilities and health status (hereinafter - individual characteristics). Compliance with the following general requirements is ensured: the use of special technical means of training collective and individual use, the provision of services of an assistant (assistant), providing such a student with the necessary technical assistance, providing access to buildings and premises where classes are held, other conditions without which it is impossible or difficult to study the discipline.

**6.2 Ensuring compliance with general requirements**

In the implementation of the discipline on the basis of a written application of the student provides compliance with the following general requirements: the conduct of classes for students with disabilities and persons with disabilities in the same classroom together with students who do not have disabilities, if it does not create difficulties for students, the presence in the classroom assistant (assistants), providing(s) students with the necessary technical assistance, taking into account their individual characteristics, the use of technical means necessary for students, taking into account their individual characteristics, the use of technical means necessary for students with disabilities and persons with disabilities, taking into account their individual characteristics, the use of technical means necessary for students with disabilities and persons with disabilities.

**6.3 Bringing to the attention of students with disabilities in an accessible form all local normative acts of FSBEI HE PSMU of MOH of Russia**

All local normative acts of FSBEI HE PSMU of MOH of Russia on the implementation of the discipline (module) are brought to the attention of students with disabilities in an accessible form.

**6.4 Realization of the increase in the duration of interim certification in relation to the established duration for a student with disabilities**

The form of current and interim attestation on the discipline for students with disabilities and persons with disabilities is established taking into account individual psychophysical features (orally, in writing on paper, in writing on the computer, in the form of testing, etc.). Duration of passing interim certification in relation to the established duration is increased at the written request of a student with disabilities. The duration of preparation of the student to the answer to the credit is increased by at least 0.5 hours.

**7. STAFFING OF THE DISCIPLINE**

The composition of scientific and pedagogical staff, providing the implementation of the educational process in the discipline, meets the requirements of the FSES HE in the specialty 31.05.03 Dentistry and is posted on the website of the educational organization.

