University of Gdańsk

Subject card

Subject name and code	Etiology and pathogenesis of selected immunodeficiencies, PG_00189320		
Field of study	Biology		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2025/2026
Education level	Master's studies	Subject group	Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	1.0
Learning profile	academic	Assessment form	credit
Conducting unit	Laboratory of Protein and Nucleic Acid Biochemistry -> Department of General and Medical Biochemistry -> Faculty of Biology -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Dorota Żurawa-Janicka	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	15.0	0.0	0.0	0.0	15

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	15	2.0	8.0	25

Subject objectives	Understanding the basis of diseases resulting from deficiencies in the mechanisms of the immune response and their consequences for human health.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOLMU2_W04] the graduate has an in-depth knowledge of the chosen specialisation in the biological sciences	- has in-depth knowledge of immunology	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[BIOLMU2_U02] the graduate is able to make proficient use of the scientific literature of the biological speciality studied	- fluently uses scientific literature in the field of immunology (B2_U02)	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[BIOLMU2_W01] the graduate has an in-depth knowledge and understanding of natural phenomena and processes at different levels of complexity	- knows the phenomena and processes related to the functioning of the immune system and understands the effects of immune response deficiencies at the cellular and clinical level and their impact on human health (B2_W01)	[SW4] test/exam - oral or written
[BIOLMU2_K07] the graduate is ready to systematically update biological knowledge and information on its practical applications	- systematically updates biological knowledge about the functioning of immune mechanisms and diseases resulting from their dysfunction, and indicates the practical application of this knowledge	[SK7] entries and opinions in the internship diary
[BIOLMU2_K05] the graduate is prepared to use recognised sources of scientific and popular information in the biological sciences to further his or her knowledge	- understands the need to use recognized sources of scientific and popular science information in the field of immunology in order to deepen knowledge	[SK8] observation of student's independent or team work

Subject contents

Primary immune deficiencies (PID) and secondary immune deficiencies, epidemiology of PID, problems related to the diagnosis and treatment of PID, diagnostic methods used, discussion of selected PIDs, including those resulting from deficiency of antibody production, leukocyte deficiency and dysfunction. Discussion of selected secondary immunodeficiencies. HIV infection. AIDS - epidemiology, diagnosis and treatment. Mechanism of action and use of selected immunomodulatory drugs, including corticosteroids.

Prerequisites and co-requisites

Completion of the following courses: Biochemistry/introduction to biochemistry, Basics of molecular and cellular immunology/Cellular and molecular immunology. Knowledge of the structure and properties of basic types of biological macromolecules, molecular mechanisms of the flow of genetic information and the regulation of its expression.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
final test	51.0%	100.0%

<table>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>Literature used during classes

The lecture is an original study of issues related to diseases resulting from deficiencies and dysfunctions of immune response mechanisms. The lecture was prepared based on original source works from scientific literature and experience from research on the biology of diseases resulting from immune system dysfunction. Other sources include:

Cellular and Molecular Immunology, Abbas et al., 10th Ed., Elsevier Inc. 2022.

Immunology. Male et al., Elsevier Inc. Urban & Partner, 2008.

Janeways Immunobiology, Murphy et al., 9th Ed. Garland Science, 2017.

Clinical Immunology, Chapel et al., 6th Ed. Willey-Blackwell, 2021.

Original source works from scientific journals

Literature for self-study:

Abbas et al., Immunologia - funkcje i zaburzenia układu immunologicznego. Edra Urban & Partner, 2015.

Gołąb J., Jakóbisiak M., Lasek W., Stokłosa T. Immunologia. Wydawnictwo Naukowe PWN, 2017.</td></tr>
<tr><td>Supplementary literature</td><td>Research and review articles from scientific journals.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Transient infant hypogammaglobulinemia (a) occurs in infants who are not breastfed (b) is caused by a defect in the transport of maternal IgG across the placenta via the neonatal receptor for the Fc fragment of IgG (c) is particularly severe in the first months of life (d) indicates the possibility of autoimmune diseases later in life.

Symptoms that indicate the need for diagnosis of primary immunodeficiencies include (a) ear, sinus, bronchial, or pneumonia infections occurring several times a year (b) recurrent infections requiring long-term antibiotic therapy (c) recurrent infections in unusual locations or caused by unusual pathogens, particularly opportunistic pathogens (d) all answers are correct

At what stage of the immune response is there a defect leading to the development of chronic granulomatous disease? (a) neutrophil production in the bone marrow (b) neutrophil chemotaxis (c) opsonization and uptake of microorganisms by neutrophils (d) intracellular killing of microorganisms taken up by the neutrophil.

Which molecule is the cellular co-receptor for HIV entry? (a) CXCR4 chemokine receptor (b) CCR5 chemokine receptor (c) CD8 (d) At high viral loads, the CD4 receptor alone is sufficient for HIV entry.</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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