

**Subject card**

Subject name and code	Selected aspects of immunology , PG_00192259						
Field of study	Biotechnology						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2026/2027		
Education level	Master's studies	Subject group			Obligatory subject group in the field of study 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			3.0		
Learning profile	academic	Assessment form			exam		
Conducting unit	Intercollegiate Faculty of Biotechnology UG-MUG -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Marcin Okrój					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	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	30	5.0	40.0	75		
Subject objectives	The course aims to make students familiar with the structure and organization of the immune system. During the lectures, students will learn the principles of innate and adaptive immunity. Detailed knowledge about molecular mechanisms of antigen presentation, production of antibodies, cellular response, eradication of pathogens and tumor cells as well as pathomechanisms of chosen autoimmune diseases and immunodeficiencies will be provided. <b>The lectures are taught in English.</b>						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[BIOTECHMU2_W03] The graduate has in-depth, specialized knowledge of therapy and diagnostic methods of human diseases, including the mechanisms of action of selected drugs, immunotherapy, cellular and gene therapy, understanding the ethical, legal and social dilemmas involved and being able to evaluate them from the perspective of the patient's well-being and the public interest.	The student knows the pathogenesis of chosen diseases of the immune system and immune deficiencies. The student knows the challenges that emerge from bacterial, viral, and fungal infections as well as the principles of dedicated therapies and immunotherapy.			[SW4] test/exam - oral or written		
	[BIOTECHMU2_W01] The graduate has in-depth knowledge of complex biological phenomena at the molecular level and knows their importance for biotechnology, is able to analyze them in an interdisciplinary approach and assess their ethical, social and environmental implications.	The student knows the pillars and organization of the immune system. The student knows molecular mechanisms that enable the functionality of the immune system and the activity of its particular components.			[SW4] test/exam - oral or written		

Subject contents	<p>1. Evolution of immune system. General characteristics of human immune system: cells and organs of immune system, innate and acquired immunity, role of bone marrow</p> <p>2. Mechanisms of innate immunity: skin, tissue and organ barriers, secretions, PAMP, DAMP, PRRs, phagocytes, complement system, ADCC and CDCC activities</p> <p>3. Mechanisms of acquired immunity: development and selection of B and T lymphocytes, rearrangement of genes coding for antibodies and TCR, subpopulations of lymphocytes, major histocompatibility complex (MHC), signal transduction through antigen-binding receptors, immune deficiencies, production and application of poly- and monoclonal antibodies</p> <p>4. Communication between components of immune system, cytokines</p> <p>5. Antiviral and anti-infection response</p> <p>6. Autoimmunity and hypersensitivity reactions</p> <p>7. Role of programmed cell death in immunology</p> <p>8. Tumor immunology</p> <p>9. Psychoneuroimmunology</p>											
Prerequisites and co-requisites	Admission to the lecture exam is possible after passing the laboratory exercises in the subject.											
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="453 983 794 1014">Subject passing criteria</th> <th data-bbox="799 983 1141 1014">Passing threshold</th> <th data-bbox="1145 983 1482 1014">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="453 1021 794 1048">single choice test</td> <td data-bbox="799 1021 1141 1048">51.0%</td> <td data-bbox="1145 1021 1482 1048">100.0%</td> </tr> <tr> <td data-bbox="453 1055 794 1102">students' activity and answers during the lectures</td> <td data-bbox="799 1055 1141 1102">0.0%</td> <td data-bbox="1145 1055 1482 1102">0.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	single choice test	51.0%	100.0%	students' activity and answers during the lectures	0.0%	0.0%
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Example issues/ example questions/ tasks being completed	<p>NET is an acronym of:</p> <ul style="list-style-type: none"><li>a) neutrophil extracellular trap</li><li>b) neuroendocrine eotaxin transporter</li><li>c) non-essential transcytosis (e.g. of sIgA)</li><li>d) none of above</li></ul> <p>Specialized phagocytes are common in:</p> <ul style="list-style-type: none"><li>a) all animals</li><li>b) some invertebrates and all vertebrates</li><li>c) higher plants and vertebrates</li><li>d) only in vertebrates</li></ul>
Work placement	Not applicable

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