

Subject card

Subject name and code	Preparation of biomolecules. Structure and function of proteins, PG_00053209						
Field of study	Genetics and Experimental Biology						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2024/2025		
Education level	Bachelor's studies		Subject group				
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	5		ECTS credits		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Ewa Laskowska				
	Teachers		dr hab. Dorota Kuczyńska-Wiśnik				
			prof. dr hab. Ewa Laskowska				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	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		0.0		0.0	15
Subject objectives	Expanding knowledge in the field of protein biochemistry, presenting the latest literature data on proteostasis, conformational diseases and the use of proteins as biomaterials.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[GBEL3_W03] A graduate has an advanced knowledge and understanding of: molecular mechanisms of genetic information transfer and gene expression and the molecular and genetic basis of human physiology and disease, including infectious diseases		Knows and understands at an advanced level the mechanisms of protein synthesis and folding and the molecular basis of human diseases related to proteostasis disorders.		[SW4] test/exam - oral or written		
Subject contents	Protein structure (secondary, tertiary and quaternary, inherently disordered proteins), mechanisms protecting cells against proteostasis disorders, use of proteins as biomaterials, diseases related to abnormal conformation and aggregation of proteins.						
Prerequisites and co-requisites	Passing the subjects biochemistry and molecular biology. Knowledge of basic information about the structure and synthesis of proteins						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	written test with test questions and open questions (tasks)		51.0%		100.0%		
Recommended reading	Basic literature		1. Original source works from scientific journals 2. Introduction to protein structure (C. Branden, J. Tooze, Garland Publ. Inc. NY, 1999) 3. Protein folding in the cell (A. Horwich, San Diego Academic Press, 2002) 4. Protein misfolding and disease: principles and protocols (P. Bross, N. Gregersen, Humana Press, 2003) 5. Krótkie wykłady: biochemia (Hames, B.D. i Hooper, N.M. PWN, Warszawa 2007)				

	Supplementary literature	- J.M. Berg, J.L. Tymoczko, L. Stryer, Biochemia, 2009, PWN, Warszawa - Laskowska E., Kuczyńska-Wisnik D., Lipińska B. (2019) Proteomic analysis of protein homeostasis and aggregation J Proteomics 30 : 98-112 - Kuczynska-Wisnik D., Stojowska-Swędryńska K., Laskowska E. (2024) Intracellular protective functions and therapeutical potential of trehalose Molecules 29; 2088
	eResources addresses	
Example issues/ example questions/ tasks being completed	Complete the diagram showing the main components of the metabolic system/pathway/reaction that ensures proper folding/removal/autophagy/degradation of damaged proteins.	
Work placement	Not applicable	

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