University of Gdańsk

Subject card

Subject name and code	Medical aspects of cell signalling, PG_00153635		
Field of study	Biotechnology		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
Education level	postgraduate studies	Subject group	
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	2.0
Learning profile	academic	Assessment form	
Conducting unit			
Name and surname of lecturer (lecturers)	Subject supervisor	dr Kamila Kitowska	
	Teachers	dr Kamila Kitowska	

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	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	15.0	50

Subject objectives

The aim of a 5-day block of practical classes is to present the methods of testing and evaluating cell signaling, the functioning of cellular receptors
(FGFR family, EGFR, PR, ER) and their specific ligands / inhibitors. The function and importance of cellular signaling in physiology and
pathophysiology as well as targeted therapies will be presented. During the course accuartely designed experiments will be carried out to examine
processes such as:
- Activation of signaling pathways by cell stimulation with specific ligands for the receptors: EGFR, FGFR, PR, ER.
- Signal transmission regulation through the use of specific agonists and antagonists for particular receptors - importance in anti-cancer therapies.
- Analysis of activation / inhibition of signaling pathways through the evaluation of phosphorylation level of receptors and effector proteins,
polymerization of actin fibers and formation of focal adhesions (by fluorescence microscopy)
- Assessment of the effects of ligands, receptor inhibitors (EGFR, FGFR) and effector protein inhibitors (MAPK, Src) on cell proliferation, adhesion
and migration processes

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOTECHMU2_W04] The graduate knows and understands selected problems of biotechnology currently discussed in the literature	Students areable to interpret the obtained results and analyze data from scientific publications	[SW4] test/exam - oral or written
[BIOTECHMU2_W01] The graduate knows and understands complex biological phenomena at the molecular level, their importance for biotechnology	Student have the basic skills necessary for laboratory work in sterile conditions, have the skills to analyze the activation of proteins involved in signal transduction.	[SW4] test/exam - oral or written
[BIOTECHMU2_W03] The graduate knows and understands general concepts of therapy and diagnostic methods of human diseases, including the mechanisms of action of selected drugs, immunotherapy and gene therapy	Students know the specialized techniques and research tools necessary to assess the involvement of individual proteins in the processes of cell migration, adhesion, and proliferation.	[SW4] test/exam - oral or written

Subject contents

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Prerequisites and co-requisites

Bechelor's degree.

Knowledge in eukaryotic cell biology and biochemistry.
Participation in the subject: Cell signaling - medical aspects (lecture)

Assessment methods and criteria

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

Recommended reading

Basic literature	Materials provided by the lecturer - original script prepared by Kamila Kitowska. Materials included in lectures: Cell signaling - medical aspects
Supplementary literature	-
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed

Work placement

Not applicable

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