University of Gdańsk

Subject card

Subject name and code	Marine Natural Products - laboratory classes, PG_00201679						
Field of study	Marine 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	English			
Semester of study	1		ECTS credits	1.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Laboratory of Marine Biotechnology -> Department of Marine Biology and Biotechnology -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Robert Konkel				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	15.0	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	Acquiring knowledge on the pharmacological potential of marine bioproducts and technologies used to assess their medicinal properties, including: research biological tests, preclinical tests, and clinical trials.Understanding the ethical challenges and dilemmas associated with in vivo research						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[MBMU2-KK03] Is ready to apply the principles of occupational health and safety, especially in the laboratory and at sea; is responsible for their own and others' safety; can recognize hazards and take appropriate action	The student will be able to discuss and evaluate the ethical risks and dilemmas associated with the pharmacological development of marine products, including ethical risks and dilemmas related to preclinical and clinical trials.	[SK1] oral statement/conversation/ discussion [SK8] observation of student's independent or team work
[MBMU2-KU01] Can plan and conduct research in the laboratory and at sea, and to document procedures and results. Independently or under the supervision of an authorized staff member, carries out work using specialized equipment. Complies with occupational health and safety regulations.	The student will acquire knowledge about the potential pharmacological use of natural marine products. They will be able to describe the stages of development of marine bioproducts as potential drugs, including product acquisition, in vitro tests, preclinical and clinical trials. The student will be able to list examples of marine-derived drugs. They will understand and be able to describe the operation of advanced methods used to assess the pharmacological potential of natural marine products, including toxicity tests, stability tests, activity assays, enzymatic tests, cell culture techniques, organoid culture, work with C. elegans, and various stages of preclinical and clinical trials.	[SU4] test/exam - oral or written [SU8] observation of student's independent or team work

Subject contents

Basics of marine bioproduct development as potential drugs. Justification for the use, advantages, and disadvantages of various in vitro tests, cell culture tests, organoids, and model organisms. Objectives and stages of preclinical tests and clinical trials. Examples of marine-derived drugs.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
The written response.	51.0%	80.0%
report	51.0%	20.0%

Recommended reading

Basic literature	Schumacher Alexander, Hinder Markus, Gassmann Oliver, 2016. Value Creation in the Pharmaceutical Industry: The Critical Path to Innovation, Wiley-VCH, ISBN-10: 3527339132; ISBN-13: Graham Patric., 2018. An Introduction to medicinal chemistry. Oxford University Press, UK, ISBN: 9780198796589
Supplementary literature	Selected scientific articles, for example: Marine Drugs (MDPI), Marine Biotechnology (Springer)
eResources addresses	

Example issues/ example questions/ tasks being completed

Work placement

Not applicable

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