

COURSE DESCRIPTION CARD

Course name	2D and 3D human cell cultures and tissue engineering scaffolds				
Course type	facultative	Course code	SDPB0015	ECTS credits	2
Forms and number of hours	Lecture: 10h Seminar: 10h	Scientific discipline	all	Semester	4
Course objectives	The aim of this course is to acquire knowledge of the fundamentals of in vitro human cell and tissue culture and their applications in the biomedical field. The course will help systematize knowledge about mono- and co-culture systems and understand the principles of culture optimization. The aim is also to explain the structure and function of components that constitute scaffolds in tissue engineering and to learn the basic principles of their formation in in vitro culture. Furthermore, the course will provide an understanding of the basic principles of safe and aseptic work in a cell culture laboratory.				
Course content	Lecture: 1. Basics of in vitro human cell and tissue culturing. 2. Mono- and co-culture systems. Optimizing culture conditions. Stem cell culturing. 3. 2D and 3D cultures. Scaffolds in tissue engineering and cell culturing. Seminar: 1. Familiarization with the principles of work, layout, and equipment of a cell culture laboratory. Principles of aseptic and safe work in a cell culture laboratory. 2. Basic techniques used in the cell culture laboratory and planning experiments on in vitro cell cultures. 3. Cellular components of constructs in tissue engineering.				
Teaching methods	lecture – multimedia presentation; seminar – presentations, discussion				
Assessment method	Lecture: written exam; Seminar: assessment based on presentations and activity of doctoral students				
Symbol of learning outcome	Learning outcomes		Reference to the learning outcomes for the field of study for the 8 th level of Polish Qualification Framework (PRK)	Methods of assessing the learning outcomes	
LO1	The doctoral student knows and understands the methodology of scientific research.		P8S_WG	Presentation, discussions	
LO2	Knows and understands the economic, legal, ethical and other important conditions of scientific activity.		P8S_WG	Discussions, exam, presentation	
LO3	The student is able to develop research methods, techniques and tools and apply them creatively		P8S_UW	Class discussion, Presentation	
LO4	Is ready to recognize the importance of knowledge in solving cognitive and practical problems.		P8S_KK	Exam, Presentation	

Student workload (in hours)	
Lecture/Seminar	10/10
Consultations	1
The unassisted student work	10
Implementation of project tasks and preparation for and participation in exams/tests	5
Total	36
ECTS credits	2

Basic references	1. Principles of Regenerative Medicine; red. A Atala. Academic Press, 2007. 2. Principles of Tissue Engineering; red. R. Lanza, R. Langer, J. Vacanti, Academic Press, 2006. 3. Stokłosowa S., (red.), Hodowla komórek i tkanek: praca zbiorowa, PWN, Warszawa 2012.
Supplementary references	1. Cheryl D. Helgason, Cindy L. Miller. Basic cell culture protocols. Methods in Molecular Biology. Humana Press Totowa, New Jersey 2005. 2. Culture of Animal Cells, A Manual of Basic Technique, 5th Edition, red R. I. Freshney, 2005 3. Cell and Tissue Culture for Medical Research; red. A. Doyle, J.B. Griffiths, John Wiley&Sons, 2000
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