

Course Unit Descriptor

Study Programme: Master of Science in Biochemistry, Master of Science in Chemistry (organic chemistry block)			
Course Unit Title: Development of anticancer drugs			
Course Unit Code: IB-515			
Name of Lecturer(s): Associate Professor Ivana Kovačević			
Type and Level of Studies: Master of Science Degree			
Course Status (compulsory/elective): Elective			
Semester (winter/summer): Summer			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): Face-to-face			
Number of ECTS Allocated: 6			
Prerequisites:			
Course Aims: Acquaintance with basic methods and principles of development and biological evaluation of anticancer drugs. Introduction to molecular mechanism of action of different drug categories.			
Learning Outcomes: Upon successful completion of this course, the student is able to explain methods and principles of anticancer drugs development from potential drug to final, commercial pharmaceutical and to understand biochemical mechanisms of different drug actions.			
Syllabus:			
<i>Theory</i>			
Biochemical principles of chemotherapy. Classes of anticancer drugs and molecular mechanism of actions. Development of anticancer drugs based on ligand-receptor interactions. Target cancer therapy. Future of anticancer drugs. Development of the new pharmaceuticals from design and synthesis to biological evaluation. Basic principles of <i>in vitro</i> and <i>in vivo</i> investigation. Phases of clinical research.			
<i>Practice</i>			
Laboratory work: Multistep synthesis of potential antitumor agent and its structural characterisation. Introductions to techniques for evaluation of antitumor activity.			
Required Reading:			
<ol style="list-style-type: none"> 1. I. Kovačević: Introduction to development of antitumor drugs, Lecture notes, Faculty of Sciences, Novi Sad, accessible through Moodle platform 2. C. Avendano, J. C. Menendez: <i>Medicinal chemistry of anticancer drugs</i>, Elsevier, Amsterdam, 2008. 3. M. Chatterjee (Ed.): <i>Molecular Targets and Strategies in Cancer Prevention</i>, Springer, 2016. 4. P. V. Devarajan, S. Jain (Ed.): <i>Targeted Drug Delivery: Concepts and Design</i>, Chapter 2: Recent Advances in Tumor Targeting Approaches, Springer, 2015. 5. S. Neidle: <i>Cancer drug design and discovery</i>, Elsevier, London, 2014. 			
Weekly Contact Hours: 4		Lectures: 2	Practical work: 2
Teaching Methods: Lectures, laboratory work, desk study projects, seminar(s)			
Knowledge Assessment (maximum of 100 points): 100			
Pre-exam obligations		Final exam	points
Active class participation		written exam	60
points		points	points
10		written exam	60

Practical work	10	oral exam	
Seminar(s)	20		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.