



Univerza v Mariboru

Medicinska fakulteta

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Ime predmeta:	Kancerogeneza in biologija tumorjev							
Course title:	Carcinogenesis and Tumor Biology							
Študijski program in stopnja Study programme and cycle	Študijska smer Study option			Letnik Year of study	Semester Semester			
Biomedicinska tehnologija/3. stopnja				2	3 ali 4			
Biomedical Technology/3rd Degree								
Vrsta predmeta (obvezni ali izbirni) / Course type (compulsory or elective)				Izbirni				
				Elective				
Univerzitetna koda predmeta / University course code:								
Predavanja Lectures	Seminar Seminar	Vaje Tutorial			Klinične vaje Clinical training	Druge oblike študija Other forms of study	Samost. delo Individual work	ECTS
15	20	10					135	6
		AV	LV	RV				
Nosilec predmeta / Course coordinator:				izr.prof.dr.Irena Oblak, dr.med.				
Jeziki /Languages:		Predavanja / Lectures:		Slovensko/Slovenian				
		Vaje / Tutorial:		Slovensko/Slovenian				
Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:				Prerequisites for enrolling in the course or for performing study obligations:				
Vsebina (kratek pregled učnega načrta):				Content (syllabus outline):				
Uvod: od normalnih tkiv do neoplastičnega procesa Pospeševalni dejavniki kancerogeneze: epidemiologija raka Pospeševalni dejavniki kancerogeneze: spoznanja klinične onkologije Ionizirajoče sevanje in ostali fizikalni dejavniki v kancerogenezi Kemična kancerogeneza Virusna kancerogeneza Genetski dejavniki v kancerogenezi Kemopreventiva raka Tumorska biologija Imunologija raka Invazija in metastaziranje Biologija limfoproliferativnih bolezni Biologija tumorjev epitelnih tkiv Biološke osnove radioterapije				Introduction: from normal tissue to neoplasia Carcinogenesis, risk factors and cancer epidemiology Carcinogenesis: lessons from clinical oncology Ionising radiation and other physical factors in carcinogenesis Chemical carcinogenesis Viral carcinogenesis Genetic factors in carcinogenesis Cancer chemoprevention Introduction to tumor biology Cancer immunology Invasion and metastasis Biology of lymphoproliferative disorders Biology of epithelial neoplasia Biological basis of radiotherapy Biological basis of cancer chemotherapy				



Biološke osnove kemoterapije Tarčna biološka zdravila	Targeted biological therapy
Temeljni literatura in viri / Reading materials:	
<p>1. Novaković, S., Hočevar, M., Jezeršek Novaković, B., Strojjan, P., Žgajnar, J. (ur.). Onkologija: raziskovanje, diagnostika in zdravljenje raka. 1. izdaja. Ljubljana: Mladinska knjiga; 2009.</p> <p>2. Elektronski učbenik Onkologija; 2018: (Učbenik je brezplačno dostopen tudi v digitalni obliki na spletni strani Onkološkega inštituta www.onko-i.si/ucbenik_onkologija; doi: 10.25670/oi2018-001m)</p> <p>3. Matos E, Šeruga B (ur.) ; [avtorji Čemažar M, Grašič Kuhar C, Irgolič N, et al. Klinično raziskovanje v onkologiji : učbenik za študente medicine in specializante onkologije.]. 1. izd. - Ljubljana : Onkološki inštitut, 2024. (Učbenik je brezplačno dostopen tudi v digitalni obliki na spletni strani Onkološkega inštituta: https://www.onko-i.si/ucbenik-klinicno-raziskovanje-v-onkologiji)</p> <p>4. Mendelsohn, J., Howley, M. P., Israel, A. M., Gray, W. J., Thompson, B. C. The Molecular Basis of Cancer. 4. izdaja. Philadelphia: Saunders, Elsevier; 2015. https://dl.cafepezeshki.ir/book/The-Molecular-Basis-of-Cancer-4th-Edition(www.CafePezeshki.IR).pdf</p> <p>5. DeVita V Jr, Rosenberg, SA, Lawrence TS (ur.). DeVita, Hellman, and Rosenberg's Cancer: Principles & Practice of Oncology. Philadelphia: Wolters Kluwer; 2023.</p>	
Cilji in kompetence:	Objectives and competences:
Študent bo spoznal: nastanek raka heterogenost rakavih bolezni v njihovem nastanku, razvoju, vzorcu širjenja in odzivu na zdravljenje biološke temelje medicinskih intervencij pri preprečevanju, odkrivanju in zdravljenju rakavih bolezni	The student should understand: principles of carcinogenesis heterogeneity of cancer in its genesis, development, metastatic process and response to treatment biological foundations of medical interventions in prevention, detection and treatment of cancer
Predvideni študijski rezultati:	Intended learning outcomes:
Znanje in razumevanje: Razumevanje biologije, nastanka in razvoja posameznih rakavih bolezni bo študent koristno uporabil pri svojem raziskovalnem delu	Knowledge and understanding: Understanding of cancer biology and development will be invaluable for practical planning of research in the field of oncology
Prenosljive/ključne spretnosti in drugi atributi: Študent bo svoje znanje prenašal na ostale sodelavce v raziskovalnem timu in jih spodbujal k globljemu razumevanju biologije raka kot nujnega pogoja za uspešnejše obvladovanje raka	Transferable/key competences and other abilities: The student will strive to pass his/her knowledge to other members of the research team and promote deeper understanding of cancer biology as a prerequisite for more efficient cancer control.
Metode poučevanja in učenja:	Learning and teaching methods:
Predavanja /konzultacije Seminar (študentje pripravijo pregled svojega ožjega področja, s poudarkom na spoznanjih epidemiologije in biologije Seminarske vaje: študentje izdelajo program raziskave s svojega področja	Lectures / consultation Seminars students will prepare a survey from their field of interest in clinical oncology, with emphasis on cancer epidemiology and biology Tutorials: students will prepare a proposal for research on their field of interest Individual work

Samostojno delo		
Načini ocenjevanja:	Delež (v %) / Share (in %)	Assessment methods:
Način (pisni izpit, ustno izpraševanje, naloge, projekt)		Method (written or oral exam, coursework, project):
Pisni izpit	50 %	Written exam
Seminarska naloga	50 %	Seminar paper
Reference nosilca / Lecturer's references:		
<p>ZADNIK, Vesna, MIHOR, Ana, TOMŠIČ, Sonja, ŽAGAR, Tina, BRIC, Nika, LOKAR, Katarina, OBLAK, Irena. Impact of COVID-19 on cancer diagnosis and management in Slovenia : preliminary results. <i>Radiology and oncology</i>. [Print ed.]. 2020, vol. 54, no. 3, str. 329-334, ix, graf. prikazi. ISSN 1318-2099. https://content.sciendo.com/configurable/contentpage/journals\$002fraon\$002f54\$002f3\$002farticle-p329.xml, https://repozitorij.uni-lj.si/IzpisGradiva.php?id=122087, http://www.dlib.si/details/URN:NBN:SI:doc-K5GKP2VZ, DOI: 10.2478/raon-2020-0048.</p> <p>RATOŠA, Ivica, JENKO, Aljaša, ŠLJIVIČ, Željko, PIRNAT, Maja, OBLAK, Irena. Breast size and dose to cardiac substructures in adjuvant three-dimensional conformal radiotherapy compared to tangential intensity modulated radiotherapy. <i>Radiology and oncology</i>. [Print ed.]. 2020, vol. 54, no. 4, str. 470-479, x. ISSN 1318-2099. http://www.dlib.si/details/URN:NBN:SI:doc-5CQ2BR00, DOI: 10.2478/raon-2020-0050.</p> <p>ŽAGAR, Tina, TOMŠIČ, Sonja, ZADNIK, Vesna, BRIC, Nika, BIRK, Mojca, VURZER, Blaž, MIHOR, Ana, LOKAR, Katarina, OBLAK, Irena. Impact of the COVID-19 epidemic on cancer burden and cancer care in Slovenia : a follow-up study. <i>Radiology and oncology</i>. [Print ed.]. 2022, vol. 56, no. 4, str. 488-500, ilustr. ISSN 1318-2099. https://sciendo.com/article/10.2478/raon-2022-0050, http://www.dlib.si/details/URN:NBN:SI:doc-O7H7HX9I, DOI: 10.2478/raon-2022-0050.</p>		