Medicinski fakultet u Rijeci

IZVEDBENI NASTAVNI PLAN
2025/2026

Za kolegij

Nutrition, Metabolism, Aging, and Aging-related Diseases

Studij:	**Medical Studies in English (R)** (izborni) Sveučilišni integrirani prijediplomski i diplomski studij
Katedra:	**Zavod za molekularnu medicinu i biotehnologiju**
Nositelj kolegija:	**prof. dr. sc. Volarević Siniša, dr. med.**
Godina studija:	**4**
ECTS:	**1.5**
Stimulativni ECTS:	**0 (0.00%)**
Strani jezik:	**Mogućnost izvođenja na stranom jeziku**

Podaci o kolegiju:

The course aims to introduce the students to the current understanding of the link between metabolism, cancer, and accelerated aging at the molecular level. Particular emphasis will be put on the role of unhealthy habits regarding eating and nutrition on cancer pathogenesis and accelerated aging. Students will also be informed about the implications of this knowledge for the prevention and treatment of aging-related diseases, particularly cancer and neurodegenerative disorders.

Popis obvezne ispitne literature:

Lodish H, Berk A, Zipursky SL, Matsudaira P, Baltimore D, Darnell JE. (1999) Molecular Cell Biology. 4th edition, W H Freeman & Co.

Popis dopunske literature:

Deleyto-Seldas N and Efeyan A. The mTOR-autophagy axis and the control of metabolism. Front Cell Dev Biol, 9:655731 (2021)

Vander Heiden MG et al. Understanding the Warburg effect: the metabolic requirements of cell proliferation. Science, 324:1029-1033 (2009)

de Cabo, and Mattson MP. Effects of Intermittent fasting on health, aging, and disease. N Engl J Med. 381:2541-2551 (2019)

Longo VD and Anderson RM. Nutrition, longevity, and disease: from molecular mechanisms to interventions. Cell. 185:1455-1470 (2022)

Nastavni plan:

Predavanja popis (s naslovima i pojašnjenjem):

Metabolic reprogramming in cancer

Metabolic reprogramming in cancer.

Seminari popis (s naslovima i pojašnjenjem):

Dysregulation of energy metabolism in cancer

Dysregulation of energy metabolism in cancer.

The key role of the insulin receptor-PI3K-mTORC1 signaling pathway in cancer and aging

The key role of the insulin receptor-PI3K-mTORC1 signaling pathway in cancer and aging

Dysregulated protein synthesis drives cancer pathogenesis and accelerates aging

Dysregulated protein synthesis drives cancer pathogenesis and accelerates aging

Unhealthy habits regarding eating and nutrition, metabolism, aging, and cancer

Unhealthy habits regarding eating and nutrition, metabolism, aging, and cancer

Healthy habits regarding eating and nutrition in cancer prevention and treatment

Healthy habits regarding eating and nutrition in cancer prevention and treatment.

Healthy habits regarding eating and nutrition in slowing down the aging process

Healthy habits regarding eating and nutrition in slowing down the aging process

Obveze studenata:

Classs attendance 70%.

Ispit (način polaganja ispita, opis pisanog/usmenog/praktičnog dijela ispita, način bodovanja, kriterij ocjenjivanja):

Classs attendance 70%.

Ostale napomene (vezane uz kolegij) važne za studente:

1. Metabolic reprogramming in cancer
2. Dysregulation of energy metabolism in cancer
3. The key role of the insulin receptor-PI3K-mTORC1 signaling pathway in cancer and aging
4. Dysregulated protein synthesis drives cancer pathogenesis and accelerates aging
5. Unhealthy habits regarding eating and nutrition, metabolism, aging, and cancer
6. Healthy habits regarding eating and nutrition in cancer prevention and treatment
7. Healthy habits regarding eating and nutrition in slowing down the aging process

SATNICA IZVOĐENJA NASTAVE 2025/2026

Nutrition, Metabolism, Aging, and Aging-related Diseases

Predavanja (mjesto i vrijeme / grupa)	**Seminari** (mjesto i vrijeme / grupa)
18.05.2026	
Metabolic reprogramming in cancer: • P09 - NASTAVA NA ENGLESKOM JEZIKU (15:00 - 18:45) [154] ○ NMAAAD	
prof. dr. sc. Volarević Siniša, dr. med. [154]	
19.05.2026	
	Healthy habits regarding eating and nutrition in cancer prevention and treatment: • P01 (13:00 - 19:00) [154] ○ NMAAAD Healthy habits regarding eating and nutrition in slowing down the aging process: • P01 (13:00 - 19:00) [154] ○ NMAAAD
prof. dr. sc. Volarević Siniša, dr. med. [154]	
20.05.2026	
	Dysregulated protein synthesis drives cancer pathogenesis and accelerates aging: • P06 (13:00 - 17:30) [154] ○ NMAAAD Unhealthy habits regarding eating and nutrition, metabolism, aging, and cancer: • P06 (13:00 - 17:30) [154] ○ NMAAAD
prof. dr. sc. Volarević Siniša, dr. med. [154]	
26.05.2026	
	Dysregulation of energy metabolism in cancer: • P07 (13:00 - 17:30) [154] ○ NMAAAD The key role of the insulin receptor-PI3K-mTORC1 signaling pathway in cancer and aging: • P07 (13:00 - 17:30) [154] ○ NMAAAD
prof. dr. sc. Volarević Siniša, dr. med. [154]	

Popis predavanja, seminara i vježbi:

PREDAVANJA (TEMA)	Broj sati	Mjesto održavanja
Metabolic reprogramming in cancer	5	P09 - NASTAVA NA ENGLESKOM JEZIKU

SEMINARI (TEMA)	Broj sati	Mjesto održavanja
Dysregulation of energy metabolism in cancer	4	P07

The key role of the insulin receptor-PI3K-mTORC1 signaling pathway in cancer and aging	2	P07
Dysregulated protein synthesis drives cancer pathogenesis and accelerates aging	3	P06
Unhealthy habits regarding eating and nutrition, metabolism, aging, and cancer	3	P06
Healthy habits regarding eating and nutrition in cancer prevention and treatment	4	P01
Healthy habits regarding eating and nutrition in slowing down the aging process	4	P01

ISPITNI TERMINI (završni ispit):
