

Faculty of Medicine in Rijeka

**Curriculum
2024/2025**

For course

**Cell Growth and Cell Cycle Regulation in Physiological
and Pathological Conditions**

Study program:	Medical Studies in English (R) (elective) University integrated undergraduate and graduate study
Department:	Department of Molecular Medicine and Biotechnology
Course coordinator:	prof. dr. sc. Volarević Siniša, dr. med.
Year of study:	3
ECTS:	1.5
Incentive ECTS:	0 (0.00%)
Foreign language:	Possibility of teaching in a foreign language

Course information:

Cancer pathogenesis involves the dysregulation of several cellular processes, including cell growth and division. The course aims to explain the differences in cell growth and cell cycle regulation between normal and cancerous cells to the students. Students will also be informed about the implications of this knowledge for developing novel diagnostic and prognostic biomarkers for cancer and personalized anti-cancer treatments.

List of assigned reading:

Lodish H., Berk A., Zipursky S.L., Matsudaira P., Baltimore D., Darnell J.E. (1999) Molecular Cell Biology. 4th edition, W H Freeman & Co (Poglavlja 20 i 24)

List of optional reading:

1. Alberts B., Bray D., Lewis J., Raff M., Roberts K., Watson J.D. (1994) Molecular Biology of the Cell. 3rd edition, Garland Publishing, Inc., New York & London (Poglavlja 15 i 17)
2. Veliki broj originalnih i preglednih članaka

Curriculum:

Lectures list (with titles and explanation):

A short review of the hallmarks of cancer

A short review of the hallmarks of cancer

Definition of cell growth and cell division

Definition of cell growth and cell division.

Seminars list (with titles and explanation):

Signaling pathways involved in cell growth and cell cycle regulation

Signaling pathways involved in cell growth and cell cycle regulation

Signaling pathways involved in cell growth and cell cycle regulation (I. i II.)

Signaling pathways involved in cell growth and cell cycle regulation

Molecular mechanisms of cell growth

Molecular mechanisms of cell growth .

Regulators of cell cycle

Regulators of cell cycle.

Cell cycle checkpoints

Cell cycle checkpoints

Abnormalities of cell growth and cell cycle in cancer

Abnormalities of cell growth and cell cycle in cancer

Cell growth and cell cycle dysregulation may reveal therapeutic liabilities in cancer

Cell growth and cell cycle dysregulation may reveal therapeutic liabilities in cancer

Student obligations:

Student course attendance, course preparation (assigned reading), and exam are obligatory.

Exam (exam taking, description of the written/oral/practical part of the exam, point distribution, grading criteria):

Evaluation would be performed according to the actual Rules on studies of the University of Rijeka (approved by the Senat) and the Faculty of Medicine (approved by the Faculty council). In this system, the overall students' outcome is made up of 70% of their achievement during the course itself and 30% of their success in the final exam. The oral presentation of a particular segment of the course content is an obligatory part of the final exam.

Other notes (related to the course) important for students:

Course content:

1. A short review of the hallmarks of cancer
2. Definition of cell growth and cell division
3. Growth factor receptors
4. Signaling pathways involved in cell growth and cell cycle regulation
5. Molecular mechanisms of cell growth
6. Regulators of cell cycle
7. Cell cycle checkpoints
8. Abnormalities of cell growth and cell cycle in cancer
9. Cell growth and cell cycle dysregulation may reveal therapeutic liabilities in cancer

COURSE HOURS 2024/2025

Cell Growth and Cell Cycle Regulation in Physiological and Pathological Conditions

Lectures (Place and time or group)	Seminars (Place and time or group)
10.03.2025	
A short review of the hallmarks of cancer: <ul style="list-style-type: none">• v (15:30 - 19:00) [154]<ul style="list-style-type: none">◦ CGCCR Definition of cell growth and cell division: <ul style="list-style-type: none">• v (15:30 - 19:00) [154]<ul style="list-style-type: none">◦ CGCCR	
prof. dr. sc. Volarević Siniša, dr. med. [154]	
11.03.2025	
	Signaling pathways involved in cell growth and cell cycle regulation: <ul style="list-style-type: none">• P07 (15:30 - 19:45) [154]<ul style="list-style-type: none">◦ CGCCR Signaling pathways involved in cell growth and cell cycle regulation (I. i II.): <ul style="list-style-type: none">• P07 (15:30 - 19:45) [154]<ul style="list-style-type: none">◦ CGCCR
prof. dr. sc. Volarević Siniša, dr. med. [154]	
12.03.2025	
	Molecular mechanisms of cell growth: <ul style="list-style-type: none">• P06 (15:30 - 19:45) [154]<ul style="list-style-type: none">◦ CGCCR Regulators of cell cycle: <ul style="list-style-type: none">• P06 (15:30 - 19:45) [154]<ul style="list-style-type: none">◦ CGCCR Cell cycle checkpoints: <ul style="list-style-type: none">• P06 (15:30 - 19:45) [154]<ul style="list-style-type: none">◦ CGCCR
prof. dr. sc. Volarević Siniša, dr. med. [154]	
13.03.2025	
	Abnormalities of cell growth and cell cycle in cancer: <ul style="list-style-type: none">• P03 - IT CLASSROOM (08:30 - 11:00) [154]<ul style="list-style-type: none">◦ CGCCR
prof. dr. sc. Volarević Siniša, dr. med. [154]	
17.03.2025	
	Abnormalities of cell growth and cell cycle in cancer: <ul style="list-style-type: none">• P07 (15:30 - 19:00) [154]<ul style="list-style-type: none">◦ CGCCR Cell growth and cell cycle dysregulation may reveal therapeutic liabilities in cancer: <ul style="list-style-type: none">• P07 (15:30 - 19:00) [154]<ul style="list-style-type: none">◦ CGCCR

List of lectures, seminars and practicals:

LECTURES (TOPIC)	Number of hours	Location
A short review of the hallmarks of cancer	2	v
Definition of cell growth and cell division	2	v

SEMINARS (TOPIC)	Number of hours	Location
Signaling pathways involved in cell growth and cell cycle regulation	4	P07
Signaling pathways involved in cell growth and cell cycle regulation (I. i II.)	3	P07
Molecular mechanisms of cell growth	3	P06
Regulators of cell cycle	3	P06
Cell cycle checkpoints	2	P06
Abnormalities of cell growth and cell cycle in cancer	3	P03 - IT CLASSROOM P07
Cell growth and cell cycle dysregulation may reveal therapeutic liabilities in cancer	3	P07

EXAM DATES (final exam):
