

[Medicinski fakultet u Rijeci]

## Curriculum 2025/2026

[Za kolegij]

# Regeneration Medicine

Study programme: **Medical Studies in English (R)** (elective)  
[Sveučilišni integrirani prijediplomski i diplomski studij]  
Department: **[Zavod za anatomiju]**  
Course coordinator: **prof. dr. sc. Jerković Kraljić Romana, dr. med.**

Year of study: **1**  
ECTS: **1.5**  
Incentive ECTS: **0 (0.00%)**  
Foreign language: **Possibility of teaching in a foreign language**

**Course information:**

**List of assigned reading:**

**List of optional reading:**

## Curriculum:

### Lectures list (with titles and explanation):

#### L1 Introductory lecture

To acquaint course participants with the regenerative capacity of different types of tissues, the potency of body cells and their ability to grow and differentiate into various cell types, methods of cell and gene therapy, previous results of cell and gene therapy in tissue regeneration, possibilities of clinical application, and regenerative medicine as a means of slowing down the aging of cells, tissues, and the organism.

#### **Definition of regenerative medicine, the most important discoveries and insights, possibilities and limitations.**

Mitotic/postmitotic cells, cell cycle, cell potency, differentiation, cell culture. Stem cells (embryonic, mesenchymal, origin, markers, manipulation, application of stem cells in therapy)

### Seminars list (with titles and explanation):

#### Cell and gene therapy

Types of therapy, vectors. Application, examples. Advantages/disadvantages. Immunological aspect

#### Tissue engineering

Cell lines, manipulation. 3D biomaterials/scaffolds/bioreactors (growth factors). Vascular prostheses.

#### Regeneration of skeletal musculature

The student will get acquainted with seminars on satellite stations, SP stations. Extracellular matrix. Skeletal muscle as a secretory organ.

#### Wound healing

The student will learn about the types of wounds and the stages of wound healing.

#### Regeneration of bone, cartilage, and tendons

The student will become familiar with methods of regenerating bone, cartilage, and tendons.

#### Pancreas regeneration

The student will give a presentation on diabetes and therapy.

#### Regeneration of the cardiovascular system

The student will learn the ways in which the cardiovascular system can be regenerated.

#### Regeneration of the nervous system

The student will be introduced to the knowledge of the application of cellular and gene therapy in modern regenerative medicine.

#### Kidney regeneration

The student will learn about kidney regeneration methods

#### Tooth regeneration

Getting acquainted with the procedure of tooth regeneration

#### "Anti-aging" theory

Protein synthesis and aging. Hormones, growth factors, and cytokines. Oxidative damage to cells (ROS). The impact of lifestyle.

**Student obligations:**

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

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

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## COURSE HOURS 2025/2026

### Regeneration Medicine

<b>Lectures</b> (Place and time or group)	<b>Seminars</b> (Place and time or group)
<b>02.03.2026</b>	
L1 Introductory lecture: <ul style="list-style-type: none"><li>• [ONLINE] (18:00 - 20:15) <sup>[133]</sup><ul style="list-style-type: none"><li>◦ RM</li></ul></li></ul>	
prof. dr. sc. Jerković Kraljić Romana, dr. med. <sup>[133]</sup>	
<b>03.03.2026</b>	
Definition of regenerative medicine, the most important discoveries and insights, possibilities and limitations.: <ul style="list-style-type: none"><li>• [ONLINE] (17:00 - 18:30) <sup>[133]</sup><ul style="list-style-type: none"><li>◦ RM</li></ul></li></ul>	
prof. dr. sc. Jerković Kraljić Romana, dr. med. <sup>[133]</sup>	
<b>04.03.2026</b>	
	Cell and gene therapy: <ul style="list-style-type: none"><li>• [P03 - INFORMATIČKA UČIONICA] (16:30 - 19:30) <sup>[133]</sup><ul style="list-style-type: none"><li>◦ RM</li></ul></li></ul> Tissue engineering: <ul style="list-style-type: none"><li>• [P03 - INFORMATIČKA UČIONICA] (16:30 - 19:30) <sup>[133]</sup><ul style="list-style-type: none"><li>◦ RM</li></ul></li></ul>
prof. dr. sc. Jerković Kraljić Romana, dr. med. <sup>[133]</sup>	
<b>06.03.2026</b>	
	Regeneration of skeletal musculature: <ul style="list-style-type: none"><li>• [ONLINE] (16:30 - 20:15) <sup>[133]</sup><ul style="list-style-type: none"><li>◦ RM</li></ul></li></ul> Wound healing: <ul style="list-style-type: none"><li>• [ONLINE] (16:30 - 20:15) <sup>[133]</sup><ul style="list-style-type: none"><li>◦ RM</li></ul></li></ul>
prof. dr. sc. Jerković Kraljić Romana, dr. med. <sup>[133]</sup>	
<b>13.03.2026</b>	
	Regeneration of bone, cartilage, and tendons: <ul style="list-style-type: none"><li>• [ONLINE] (16:30 - 20:15) <sup>[133]</sup><ul style="list-style-type: none"><li>◦ RM</li></ul></li></ul> Pancreas regeneration: <ul style="list-style-type: none"><li>• [ONLINE] (16:30 - 20:15) <sup>[133]</sup><ul style="list-style-type: none"><li>◦ RM</li></ul></li></ul>
prof. dr. sc. Jerković Kraljić Romana, dr. med. <sup>[133]</sup>	
<b>16.03.2026</b>	

	<p>Regeneration of the cardiovascular system:</p> <ul style="list-style-type: none"> <li>• [P03 - INFORMATIČKA UČIONICA] (16:30 - 20:15) <sup>[133]</sup> <ul style="list-style-type: none"> <li>◦ RM</li> </ul> </li> </ul> <p>Regeneration of the nervous system:</p> <ul style="list-style-type: none"> <li>• [P03 - INFORMATIČKA UČIONICA] (16:30 - 20:15) <sup>[133]</sup> <ul style="list-style-type: none"> <li>◦ RM</li> </ul> </li> </ul>
prof. dr. sc. Jerković Kraljić Romana, dr. med. <sup>[133]</sup>	
<b>18.03.2026</b>	
	<p>Kidney regeneration:</p> <ul style="list-style-type: none"> <li>• [P03 - INFORMATIČKA UČIONICA] (16:30 - 19:30) <sup>[133]</sup> <ul style="list-style-type: none"> <li>◦ RM</li> </ul> </li> </ul> <p>Tooth regeneration:</p> <ul style="list-style-type: none"> <li>• [P03 - INFORMATIČKA UČIONICA] (16:30 - 19:30) <sup>[133]</sup> <ul style="list-style-type: none"> <li>◦ RM</li> </ul> </li> </ul>
prof. dr. sc. Jerković Kraljić Romana, dr. med. <sup>[133]</sup>	
<b>20.03.2026</b>	
	<p>"Anti-aging" theory:</p> <ul style="list-style-type: none"> <li>• [ONLINE] (16:30 - 18:00) <sup>[133]</sup> <ul style="list-style-type: none"> <li>◦ RM</li> </ul> </li> </ul>
prof. dr. sc. Jerković Kraljić Romana, dr. med. <sup>[133]</sup>	

### List of lectures, seminars and practicals:

LECTURES (TOPIC)	Number of hours	Location
L1 Introductory lecture	2	[ONLINE]
Definition of regenerative medicine, the most important discoveries and insights, possibilities and limitations.	3	[ONLINE]

SEMINARS (TOPIC)	Number of hours	Location
Cell and gene therapy	2	[P03 - INFORMATIČKA UČIONICA]
Tissue engineering	2	[P03 - INFORMATIČKA UČIONICA]
Regeneration of skeletal musculature	2	[ONLINE]
Wound healing	1	[ONLINE]
Regeneration of bone, cartilage, and tendons	2	[ONLINE]
Pancreas regeneration	2	[ONLINE]
Regeneration of the cardiovascular system	2	[P03 - INFORMATIČKA UČIONICA]
Regeneration of the nervous system	2	[P03 - INFORMATIČKA UČIONICA]
Kidney regeneration	2	[P03 - INFORMATIČKA UČIONICA]
Tooth regeneration	1	[P03 - INFORMATIČKA UČIONICA]
"Anti-aging" theory	2	[ONLINE]

**EXAM DATES (final exam):**

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