

Title of BIP: Gene and Cell-based therapy

General information
<p>Objectives and Description:</p> <p>The course will start by focusing on the fundamentals of gene and cell-based therapies and aboard the forefront of research in these areas such as CRISPR and Gene Editing, CAR-T Cell Therapy, Gene Therapy, Stem Cell Therapies, immunotherapy, Regenerative Medicine, Synthetic Biology.</p>
<p>Methods and outcomes:</p> <p>The course will apply teaching approaches that prioritize students' needs, interests, and abilities, actively involving them in the learning process. The program includes seminars by experts in gene and cell-based therapies, promoting students' engagement with the material through discussions, and hands-on activities in groups with peer interactions to foster international collaboration and communication skills.</p> <p>After the course, students will get an in-depth insight into the cutting-edge and rapidly developing field of cell and gene therapies.</p>
<p>Field of Education:</p> <p>Biomedical/Biological Sciences</p>
<p>Target audience / Participant profile:</p> <p>MSc students, finalists of BSc courses, PhD students</p>
<p>No of ECTS issued:</p> <p>3</p>
<p>Language of instruction and requirements:</p> <p>English (the minimum requirement to apply is English language Level B1).</p>
<p>Dates for physical activity:</p> <p>30 June-4 July</p>
<p>Location of physical activity:</p> <p>University of Beira Interior- Faculty of Health Sciences</p>
<p>Dates for the virtual component:</p> <p>May 9nd and 30th May 2025</p>
<p>Virtual Component Description: The virtual component will consist of a training seminar and a teamwork exercise prior to mobility.</p>
Organizing Board
<p>Receiving/Host university:</p> <p><i>University of Beira Interior</i>, Portugal (Mafalda Fonseca, mfonseca@fcsaude.ubi.pt)</p> <p>Sending/Partner universities:</p> <p>P1. University of Zaragoza, Spain (Jose Carrodegua, carrode@unizar.es)</p>

P2. University of Turin, Italy (Paola Defilippi, paola.defilippi@unito.it)

P3. Politécnico da Guarda, Portugal (Sónia Miguel, spmiguel@ipg.pt)

Detailed programme

1. Planned activities during virtual component:

2 synchronous sessions of 90 minutes each:

9nd May 2025: BIP general presentation, General presentation of the topic “Gene and Cell-based therapy”.

Discussion.

- Webinars:

Prof- Paola Cappello “Immunotherapy in solid cancer: from cancer vaccines to CAR-T cells”

Prof. Claudia Voena “Development of Targeted Immunotherapies for a Specific Oncoantigen”

Distribution of the themes for teamwork (each group will be constituted by students of different universities)

30nd May 2025: (webinar)- *StemTherapy: National Initiative on Stem Cells for Regenerative Therapy* (speaker to be confirmed)

Teamwork presentation and discussion.

2. Planned activities during physical component:

1st day (30/06/2025):

-Morning (9.30h): Welcome + Team building activities

Seminar: Liliana Bernardino “Essential Current Concepts in Stem Cell Biology”

-Afternoon: Giorgio Merlo “Neural stem cells and difficulties of brain repair medicine”.

Teamwork.

2nd day (01/07/2025):

Morning (9.30h): Diego Sánchez Webinar: “CAR-T Therapy: Modifying our cells to fight cancer”

Afternoon: Teamwork

Cultural and leisure activities.

3rd day (02/07/2025):

Morning (10 am): “Bioengineering Organs for Transplantation: The Future of Transplantation Medicine?”. Pedro Baptista, and team-work

Afternoon: Seminar/webinar: “Organ-on-chip: challenges and opportunities” - Sónia Miguel

Teamwork

Cultural and leisure activities.

4th day (03/07/2025):

Morning: Claudia Voena “Strategies for Uncovering Resistance Mechanisms to Targeted Therapies and Identifying Novel Cancer Vulnerabilities”

Teamwork

Afternoon: “Bioprocesses for DNA vaccines”. Seminar and Laboratory practical work. Angela Sousa (UBI) and Tiago Matos (USA-Merk)

5th day (04/07/2025):

Final presentations by the groups of students.

Farewell lunch.

Evaluation and grading (scale: up to 20): The assessment will be based on two aspects: (1) the quality of interactions, in particular concerning group work collaborative activities (20%), (2) the quality of the final project work (in group) in the form of a final presentation (80%).

Application procedure

fill in application form available here: *to be generated later*
deadline: