

Title of BIP: Gene and Cell-based therapy 2026

General information	
Objectives and Description:	The course will start by focusing on the fundamentals of gene and cell-based therapies and address the forefront of research in areas such as CRISPR and Gene Editing, CAR-T Cell Therapy, Gene Therapy, Stem Cell Therapies, immunotherapy, Regenerative Medicine, Synthetic Biology.
Methods and outcomes:	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, promotes students' engagement with the material through discussions, and hands-on activities in groups with peer interactions to foster international collaboration and communication skills. After the course, students will get an in-depth insight into the cutting-edge and rapidly developing field of cell and gene therapies.
Field of Education:	Biomedical/Biological Sciences
Target audience / Participant profile:	MSc students, finalists of BSc courses, PhD students
No of ECTS issued:	3
Language of instruction and requirements:	English (the minimum requirement to apply is English language Level B1).
Dates for on-site activity:	13th-17th July 2026
Location of on-site activity:	<i>University of Turin</i> , Italy Department of Molecular Biotechnology and Health Sciences
Dates for the virtual component:	May 12 and June 19th 2026 (not overlapped with the scheduled classes of the master program)
Virtual Component Description:	The virtual component will consist of a training seminar and a teamwork exercise before mobility.
Organizing Board	
Receiving/Host university:	<i>University of Turin</i> , Italy (Paola Defilippi, paola.defilippi@unito.it)
Sending/Partner universities:	P1. University of Zaragoza, Spain (Jose Carrodeguas, carrode@unizar.es) P2. University of Beira Interior, Portugal (Mafalda Fonseca, mfonseca@fcsaude.ubi.pt) 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: <u>12th May 2026</u>: BIP general presentation, General presentation of the topic "Gene and Cell-based therapy". Distribution of the themes for teamwork (each group will be constituted by students from different universities) <u>19th June 2026</u>, 2.00pm (PT)/3.00pm (CET): (webinar) "Biotherapies based on extracellular vesicles: from research to innovation" Dr Amanda Silva Brun, Université Paris Cité, CNR
2. Planned activities during on-site component:	1st day (13/07/2026)

- Morning (9.30h-12.30): Welcome + Team building activities
- Lecture: Liliana Bernardino "Essential Current Concepts in Stem Cell Biology"
- Lecture: "CAR-T Therapy: Modifying our cells to fight cancer". Speaker: Diego Sanchez
- Afternoon: (14-16.30h)
- Webinar by Luisa Giaccone: "Cell Therapy in hematological tumors"
- Teamwork

2nd day (14/07/2026):

- Morning (9.30h):
- Lecture Giorgio Merlo "Neural stem cells and difficulties of brain repair medicine".
- Lecture Yvan Torrente "Muscle Regeneration and possible therapies for the dystrophic muscle"
- Afternoon (14-16.30h):
- Matteo Sorge & Elisa Balmas: "Disease modelling and functional genomics in hiPSC models".
- Lecture followed by lab visit
- Cultural and leisure activities.

3rd day (15/07/2026):-

- Morning (10 am):
- "Bioengineering Organs for Transplantation: The Future of Transplantation Medicine?". Pedro Baptista
- Team-work
- Afternoon (2.30 p.m.)Webinar: "Advanced Skin-on-Chip Systems: From Tissue Growth to Predictive Nanoparticle Safety" Speaker: Ana Ribeiro
- Teamwork
- Cultural and leisure activities.

4th day (16/07/2026):

- Morning: 9.30
- Claudia Voena "Oncoantigen-Targeted Immunotherapies: From Bench to Bedside"
- Paola Cappello: "Immunotherapy in solid cancer: how to outsmart the tumor microenvironment"
- Teamwork presentation and discussion.

5th day (17/07/2026):

- 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

Nominations must be sent to international.medtorino@unito.it by April 24.

Requirements:

- proficiency in English (minimum of B1 level) since the course will be entirely in English.
- candidates must declare that they have total availability to take part in the learning activities.

Grading criteria:

- curriculum average mark up to the semester prior to application -70%
- motivation letter -30%