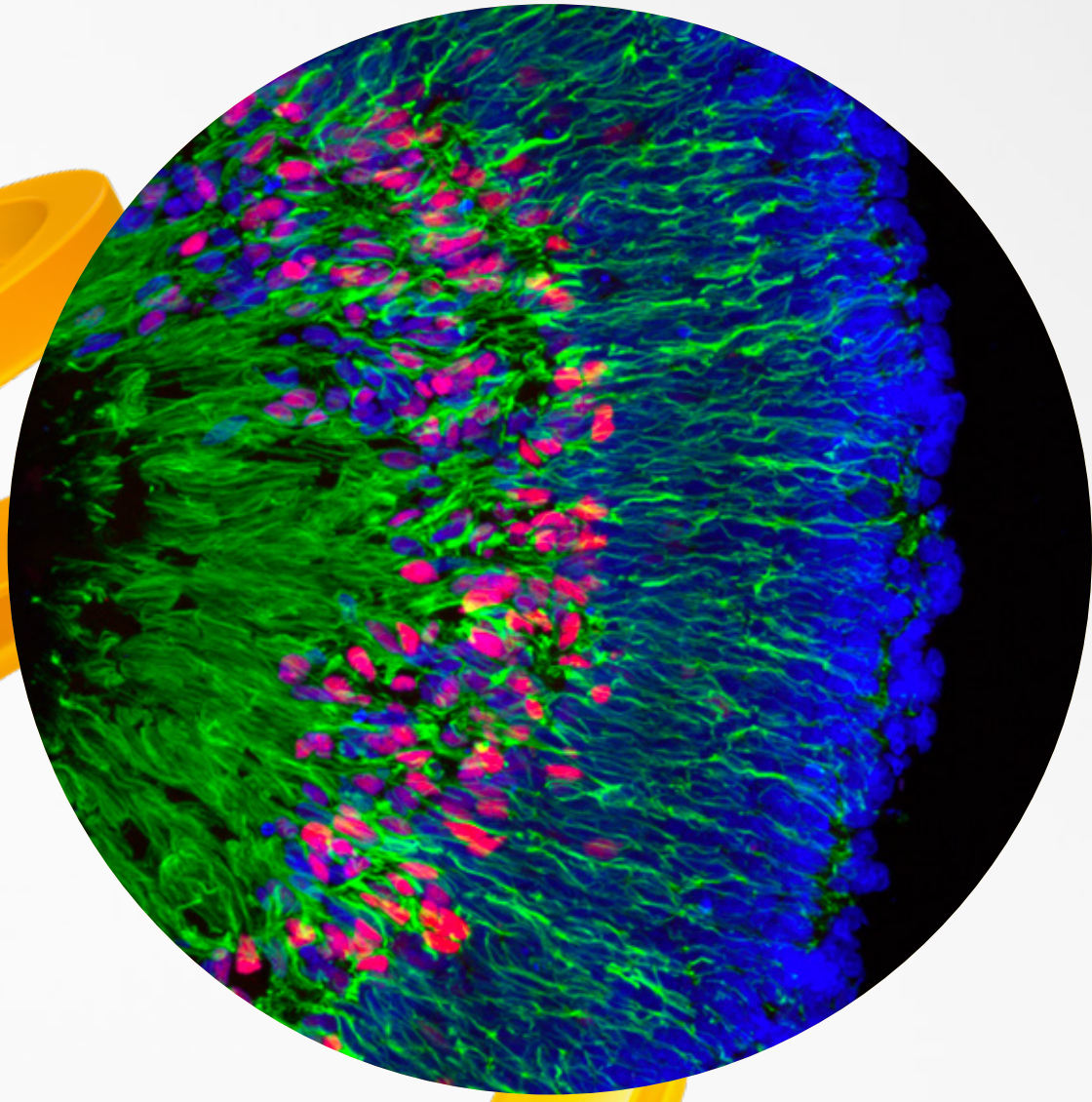
17 NOV. 2025 — 28 NOV. 2025

ADVANCED TRAINING

NEW IN VITRO MODELS: ALTERNATIVES TO ANIMAL MODELS IN RESEARCH

2ND EDITION



HUB ADVANCED EDUCATION NOVA MEDICAL SCHOOL

ADVANCED EDUCATION FOR THE FUTURE

SINCE 1977

WHY TRAINING IN NEW IN VITRO MODELS?

This course is the first in Portugal specifically dedicated to this topic.

It brings together 18 researchers from 8 national institutions and 3 top international institutions, with unique knowledge and actively involved in the development and application of various alternative models to animal experimentation.

From the derivation of human induced pluripotent stem cells from healthy or diseased donors, to organoid models, microphysiological systems, bioprinting for fundamental or preclinical studies involving different organs (retina, brain, intestine, liver, lung, skin, breast, heart, amygdala, vascular system, among others).

2ND EDITION | **3 ECTS** | Application deadline: **November 11, 2025**

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LEARNING OBJECTIVES

1. Identify and describe the main alternative models to animal experimentation used in biomedical research
2. Recognize and explain the applications of alternative models in fundamental and preclinical research contexts
3. Critically compare alternative models with animal models, considering scientific, ethical, and regulatory aspects
4. Assess the current state of development of alternative strategies and the challenges associated with their implementation
5. Demonstrate critical awareness of the need to replace, reduce, and refine the use of animals in research
6. Apply the acquired knowledge to propose solutions or experimental approaches that prioritize the use of alternative models.

AUDIENCE

PhD students in the fields of Medicine and Health Sciences

Master's graduates (or pre-Bologna Licentiates) or PhDs in the fields of Medicine and Health Sciences

EVALUATION

Assessment will focus on participation in sessions as well as on assignments and presentations by the students, in which they will be expected to apply the knowledge acquired to concrete research situations and interpret experimental data, in addition to being tested on their fundamental knowledge.

The assessment will therefore consist of three components:

- the presentation and discussion of one or two scientific articles
- the writing of a brief research project proposal on one of the priority topics addressed (focused on the problem to be solved, the hypothesis, and the objectives), and participation in the sessions

COORDINATION

Sandra Tenreiro

Guadalupe Cabral

FACULTY

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Simão T. da Rocha

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PROGRAMME

DISTANCE LEARNING	35H	ONLINE SYNCHRONOUS SESSIONS

17/11/2025 — **16H00 - 19H30**

- Introduction to stem cells and iPSCs
- Quality control of iPSCs and generation of isogenic lines

18/11/2025 — **16H00 - 19H30**

- Microphysiological systems (MPS)
- Applications of MPS – barriers and vasculature

19/11/2025 — **16H00 - 19H30**

- Multi-organ chips
- Organ-on-chip models for studying microbe-host

20/11/2025 — **16H00 - 19H30**

- Retinal organoids as disease models
- Organ-on-chip models

21/11/2025 — **16H00 - 19H30**

- 3D models for breast cancer research
- 3D models of high-grade gliomas

24/11/2025 — **16H00 - 19H30**

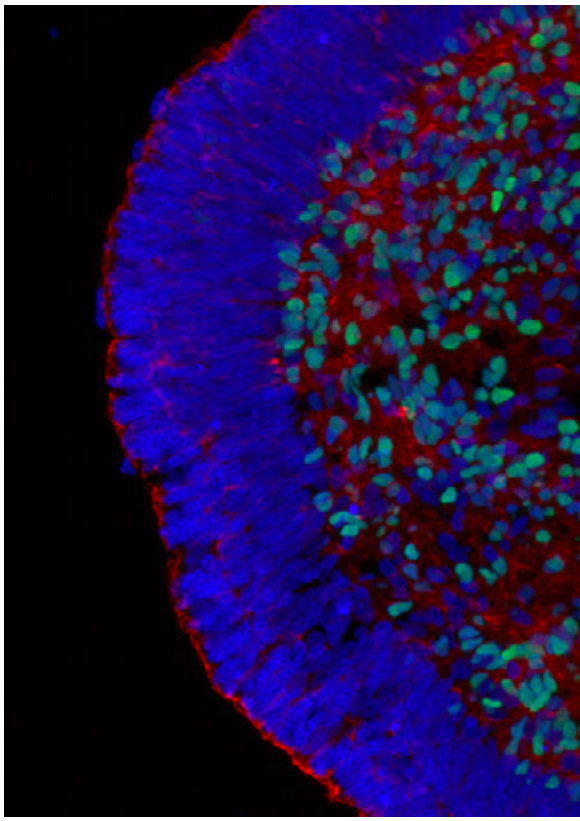
- Caenorhabditis elegans: a model system for biomedical research
- Brain organoids

25/11/2025 — **16H00 - 19H30**

- Brain organoids (cont.)
- Chip fabrication technologies and (bio-)3D printing

26/11/2025 — **16H00 - 19H30**

- 3D liver models
- Cardiac organoid models



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PROGRAMME

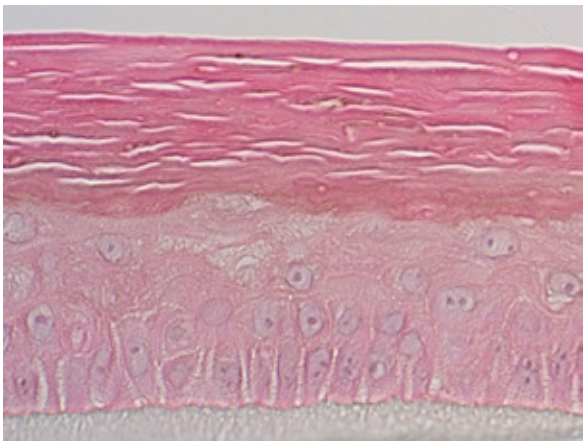
DISTANCE LEARNING	35H	ONLINE SYNCHRONOUS SESSIONS

27/11/2025 — **16H00 - 19H30**

- Reconstructed models of pigmented skin/epidermis
- 3D models of the tonsils

28/11/2025 — **16H00 - 19H30**

- In vitro 3D models of vascularization
- 3D models of the intestine and pulmonary mucosa



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APPLICATION REQUIREMENTS

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APPLICATION DOCUMENTS

CV
Certificate of qualifications

NUMERUS CLAUSUS

30

ADMISSION CRITERIA

Curriculum evaluation
Order of application

ATTENDANCE

Compulsory attendance of at least 24 hours

LANGUAGE

English

TUITION

Application fee: **51 €**
Course fee: **270 € (registration fee included)**

PROGRAM MANAGER

EDUARDO PARREIRA

ADDITIONAL INFORMATION

For more details, please contact the Program Manager:
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PRR Plano de Recuperação e Resiliência
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