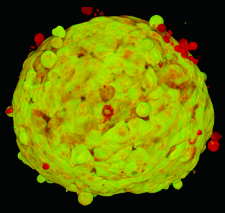

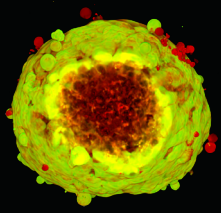

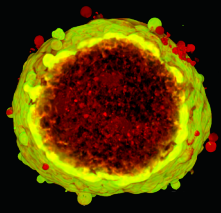

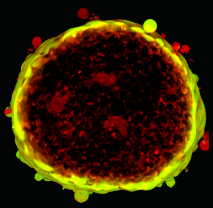

WINTER SCHOOL

ADVANCED IN VITRO MODELS: SPHEROIDS AND ORGANOIDS

Development, applications and imaging

January 12-16 2026
Bologna, Italy

ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Explore the forefront of cutting-edge research with an immersive one-week course on spheroid and organoid models, advanced imaging techniques, and molecular assays.

Tailored for post-graduate researchers, PhD candidates, and postdoctoral scholars, this program offers basic knowledge and technical expertise to leverage innovative models in biomedical research, drug screening, and personalised treatments.

COURSE HIGHLIGHTS

Innovative Preclinical Models

Understand the design, optimization, and application of spheroids and organoids in translational research.

Advanced Imaging and Assays

Master techniques such as automated live-cell imaging and confocal microscopy with a focus on 3D model analysis.

Real-World Applications

Analyse case studies demonstrating the impact of spheroid and organoid technologies on disease modelling, drug screening, and personalised treatments.

LEARNING OUTCOMES

- **Design, culture and analyse**: Collaborate in small groups to create, design, culture, and evaluate spheroids and organoids using standard techniques
- **Apply advanced tools**: Use 3D bioprinting, microfluidics, and high-content imaging in practical, problem-based sessions
- **Gain interdisciplinary insights**: Learn from leading academic researchers, industry experts, and technology innovators

WHY ATTEND?

- **Engage** in face-to-face lectures and hands-on workshops
- **Learn** from top-tier experts with huge experience in 3D model development, imaging, and translational research
- **Build** technical proficiency in molecular assays, imaging workflows, and data interpretation through immersive, case-driven exercises
- **Network** with peers and mentors to foster collaborations and stay ahead of this rapidly evolving field

Before attending the Winter School, the "Health and Safety Training" is mandatory.

The course will be held online:

- part 1 and 2 (pre-recorded)
- part 3 (live session on Teams platform) on Friday 9 January, 2:00-6:00 pm CET

MONDAY 12 JANUARY

Spheroids and organoids: development and real-world applications

9.00 **Nicola Baldini**
University of Bologna
Welcome and course overview

9.10 - 12.30 **Tumor Spheroids**

Sofia Avnet
University of Bologna
Spheroids: techniques and applications in biomedical fields

Giorgia Imparato
IIT, Naples
Bioengineered 3D microtissues for cancer modeling

10.30 Coffee Break

Serena Duchi
University of Melburne
Spheroids in bioreactors

12.30 Lunch

MONDAY 12 JANUARY

Spheroids and organoids: development and use for real-world applications

14.00 - 16.30 **Organoids**

Joana Neves
King's College
Gut organoids

Ana Angelova Volponi
King's College
Making a tooth in a dish - from organoids to organ

Vincenzo Corbo
University of Verona
PDAC organoids

Lucy Di Silvio
King's College
Ethical issues on organoids

16.40 Coffee break

17.10 - 18.00 **Microscopy applied to spheroids and organoids**

Sofia Avnet
University of Bologna
Fluorescence, confocal, and live microscopy

TUESDAY 13 JANUARY

Spheroids and organoids in practice: techniques for cultures and assays, from plates to hydrogels

9.00 **Gemma Di Pompo**
IRCCS, Istituto Ortopedico Rizzoli
Biological and molecular assays with spheroids

Francesca Perut
IRCCS, Istituto Ortopedico Rizzoli
Studying exosomes derived from spheroids

Mauro Petretta
MP Strumenti Srl
Generation and characterization of bioprinted spheroids

11.00 Coffee break

11.30 – 13.00 Hands-on workshops – 1

- Spheroids on low attachment plates and biological and molecular assays on floating and embedded spheroids
- Spheroids in hydrogel
- Organoids

TUESDAY 13 JANUARY

Spheroids and organoids in practice: techniques for cultures and assays, from plates to hydrogels

13.00 Lunch

14.30 – 16.00 Hands-on workshops – 2

- Spheroids on low attachment plates
- Spheroids in hydrogel
- Biological and molecular assays on floating and embedded spheroids

16.00 Coffee break

16.30 – 18.00 Hands-on workshops – 3

- Spheroids on low attachment plates
- Spheroids in hydrogel
- Biological and molecular assays on floating and embedded spheroids

WEDNESDAY 14 JANUARY

Spheroids and organoids in practice: fluidic techniques for 3D culture and high-content analysis

9.00 **Maria Veronica Lipreri**
IRCCS Istituto Ortopedico Rizzoli
Spheroids in microfluidics

Joris van der Lienden and Meilin Berkhoff
Mimetas
Spheroids in OrganoPlates®

Silvia Scaglione
React4Life and IIT
Spheroids in MIVO® Organ-on-Chip technology

Margherita Cortini and Sofia Avnet
University of Bologna
Studying spheroid metabolism

11.00 Coffee break

11.30 – 13.00 Hands-on workshops – 1

- Spheroids in OrganoPlates®
- Spheroids in MIVO® Organ-on-Chip
- Spheroids in custom microfluidic plates

WEDNESDAY 14 JANUARY

Spheroids and organoids in practice: fluidic techniques for 3D culture and high-content analysis

13.00 Lunch

14.30 – 16.00 Hands-on workshops – 2

- Spheroids in OrganoPlates®
- Spheroids in MIVO® Organ-on-Chip
- Spheroids in custom microfluidic plates

16.00 Coffee break

16.30 – 18.00 Hands-on workshops – 3

- Spheroids in OrganoPlates®
- Spheroids in MIVO® Organ-on-Chip
- Spheroids in custom microfluidic plates

THURSDAY 15 JANUARY

Spheroids and organoids in practice: working groups

9.00 12.00	**Student working groups: model design**
12.00	Lunch
13.30 16.00	**Student working groups: model implementation**
16.00	Coffee break
16.30 18.00	**Student working groups: pitch**
20.00	Social event

FRIDAY 16 JANUARY

Next-level microscopy and AI for fixed and live-cell analysis of 3D models

9.00 **Sofia Avnet**
University of Bologna
Microscopy applied to 3D objects

9.30 – 11.00 **Hands-on workshops – 1**
- Automated optical microscopy on spheroids
- Confocal microscopy of live spheroids
- Image processing and analysis

11.00 Coffee break

11.30 – 13.00 **Hands-on workshops – 2**
- Automated optical microscopy on spheroids
- Confocal microscopy of live spheroids
- Image processing and analysis

13.00 Lunch

14.30 – 16.00 **Hands-on workshops – 3**
- Automated optical microscopy on spheroids
- Confocal microscopy of live spheroids
- Image processing and analysis

16.00 Closure

Director

Nicola Baldini
University of Bologna

Application Deadline

December 15th

Lecture Venue

Istituto Ortopedico Rizzoli
Centro di Ricerca Codivilla-Putti
Via di Barbiano 1/10, Bologna

Available Places

18

Mandatory Attendance

75%

CFU

5

Tuition Fees

470 €

Call for Applications

www.unibo.it

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Istituto di Ricovero e Cura a Carattere Scientifico

AIRC

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Organizing Secretariat

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