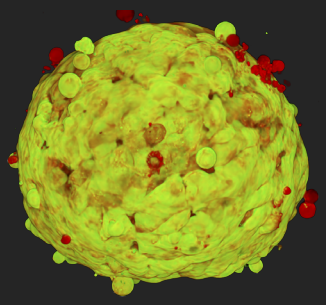

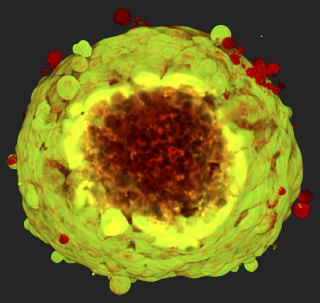

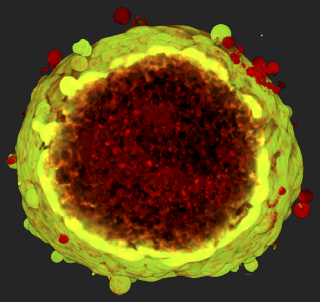

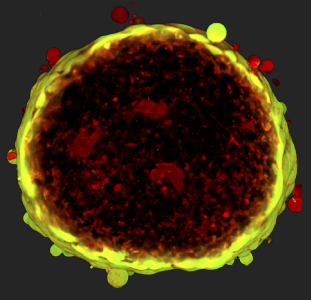

WINTER SCHOOL

ADVANCED IN VITRO MODELS: SPHEROIDS AND ORGANOIDS

Development, applications and imaging

12-16 January 2026

Bologna, Italy

ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

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, a “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

PROGRAM

MONDAY, 12 JANUARY

Spheroids and organoids: development and real-world applications

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

Tumor Spheroids

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

9.50 **Giorgia Imparato**
Istituto Italiano di Tecnologia, Naples
Bioengineered 3D microtissues for cancer modeling

10.30 Coffee break

11.00 **Serena Duchi**
University of Melbourne
Spheroids in bioreactors

11.45 **Dominique Heymann**
University of Nantes
Spheroids vs in vivo models: pros and cons

12.30 Lunch

Organoids

13.50 **Joana Neves**
King's College London
Gut organoids

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

15.10 **Vincenzo Corbo**
University of Verona
Pancreatic ductal adenocarcinoma organoids

15.50 **Lucy di Silvio**
King's College London
Ethical issues on organoids

16.30 Coffee break

Microscopy applied to spheroids and organoids

17.00 **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

9.30 **Francesca Perut**
IRCCS Istituto Ortopedico Rizzoli
Studying extracellular vesicles derived from spheroids

10.00 **Mauro Petretta**
MP Strumenti Srl
Generation and characterization of bioprinted spheroids

10.30 **Francesca Lupo**
University of Verona
Studying pancreatic ductal adenocarcinoma organoids

11.00 Coffee break

11.30 Hands-on workshops – 1

- Floating spheroids
- Bioprinted spheroids
- Organoids

13.00 Lunch

14.30 Hands-on workshops – 2

- Floating spheroids
- Bioprinted spheroids
- Organoids

16.00 Coffee break

16.30 Hands-on workshops – 3

- Floating spheroids
- Bioprinted spheroids
- Organoids

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

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

10.00 **Silvia Scaglione**
React4Life and CNR
Use of spheroids, organoids and 3D tissue models in microfluidic single-and multi-organ-on-chip

10.30 **Margherita Cortini and Sofia Avnet**
University of Bologna
Studying spheroid metabolism

11.00 Coffee break

11.30 Hands-on workshops – 1

- Spheroids in OrganoPlates®
- Spheroids in MIVO® Organ-on-Chip
- Spheroids in custom platforms for live imaging

13.00 Lunch

14.30 Hands-on workshops – 2

- Spheroids in OrganoPlates®
- Spheroids in MIVO® Organ-on-Chip
- Spheroids in custom platforms for live imaging

16.00 Coffee break

16.30 Hands-on workshops – 3

- Spheroids in OrganoPlates®
- Spheroids in MIVO® Organ-on-Chip
- Spheroids in custom platforms for live imaging

THURSDAY, 15 JANUARY

Spheroids and organoids in practice: working groups

9.00	**Working groups: model design**
12.00	Lunch
13.30	**Working groups: model implementation**
16.00	Coffee break
16.30	**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 Hands-on workshops – 1

- Automated imaging system with optical microscope
- Confocal microscopy
- Image processing and analysis with AI support

10.00 Hands-on workshops – 2

- Automated imaging system with optical microscope
- Confocal microscopy
- Image processing and analysis with AI support

11.00 Coffee break

11.30 Hands-on workshops – 3

- Automated imaging system with optical microscope
- Confocal microscopy
- Image processing and analysis with AI support

12.30 Lunch

14.00 Winter school challenge & discussion

Director
Nicola Baldini
University of Bologna
IRCCS Istituto Ortopedico Rizzoli

Application Deadline
15 December 2025

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

Available Places
21

Mandatory Attendance
75%

CFU
5

Tuition Fee
470 €

Call for Applications
www.unibo.it

Faculty

Ana Angelova Volponi
King's College London

Dominique Heymann
University of Nantes

Francesca Lupo
University of Verona

Francesca Perut
IRCCS Istituto Ortopedico Rizzoli

Gemma Di Pompo
IRCCS Istituto Ortopedico Rizzoli

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Silvia Scaglione
React4Life

Sofia Avnet
University of Bologna

Vincenzo Corbo
University of Verona

Tutors

Alessandro Pasquarelli
University of Bologna

Camilla Davoli
University of Bologna

Elisabetta Palama
React4Life

Elizabeta Ilieva
University of Bologna

Letizia Bucchi
University of Bologna

Marilina Totaro
University of Bologna

Nicolò Bozzini
University of Bologna

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FONDAZIONE ALMA MATER

Fondazione Alma Mater
fam.didatticamedica@unibo.it

Scientific Secretariat

sofia.avnet3@unibo.it

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