PhD Program in Genetics, Molecular, and Cellular Biology

Course of Human Health and Disease

Pioneering strategies in disease modeling and therapeutic discovery

May 5 - 16, 2025

Organizers
Elena Botta, Manuela Lanzafame, Donata Orioli, Giorgia Zadra - CNR Institute of Molecular Genetics - IGM Pavia
Maria Grazia Bottone, Francesca Magnani, Valeria Merico, Natalia Simona Pellegata, Paola Rebuzzini, Rossella Tricarico - Department of Biology and Biotechnology, University of Pavia
Ornella Cazzalini, Paola Perucca - Department of Molecular Medicine, University of Pavia

Program
The course is intended to provide examples of up-to-date 3D models of human diseases, research studies for the identification of innovative therapeutic modalities as well as clinical applications. The role of artificial intelligence and multi-omics for precision medicine will also be explored. Additionally, ethical and legal issues arising from human health applications will be addressed.

Monday May 5
10.00-12.00 **Giulia della Chiara** (Human Technopole, Milan)
9D²: 3D Epigenome Organization in 3D Organoid Culture Models

Tuesday May 6
14.00-16.00 **Federico Bertoglio (**Technische Universität, Braunschweig, Germany)
Monoclonal Antibodies: either tiny or huge, from their origin to the clinical applications

Wednesday May 7
11.00-13.00 **Guido Papa** (University of Cambridge, UK)
Targeted Protein Degradation: advancing degraders as a novel therapeutic modality

Thursday May 8
14.00-16.00 **Francesca Cordero** (Computer Science Department, University of Turin)
Leveraging artificial intelligence and multi-omics data for computational models in precision medicine

Friday May 9
10.30-12.30 **Silvia Scaglione** (CNR-IEIIT, Genoa)
Building Complexity: Bioreactors, 3D Tissue Models, and Organ-on-Chip Platforms

14.00-16.00 **Cristina Scielzo** (San Raffaele, Milan)
Advances in 3D culture techniques for tumor microenvironment modelling and personalized medicine: focus on 3D bioprinting

Wednesday May 14
11.00-13.00 **Sara Azzini** (Department of Electrical, Computer and Biomedical Engineering, University of Pavia)
Legal aspects in healthcare: GDPR, MDR and AI Act - Part 1

14.00-16.00 **Giuseppe Bunone** (Novavax)
mRNA vaccines: a revolution in infectious disease prevention and beyond

Friday May 16
11.00-13.00 **Sara Azzini** (Department of Electrical, Computer and Biomedical Engineering, University of Pavia)
Legal aspects in healthcare: GDPR, MDR and AI Act - Part 2

14.00-16.00 **Michaela Luconi** (University of Florence)
Novel approaches in obesity therapy