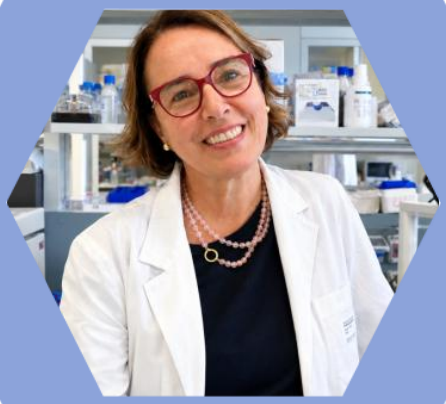
DISIT Seminar Series

2026

Tuesday 06th OCTOBER

14.30 - 15.30

Room 203



Human Organoids and Assembloids: A New Era in Preclinical Research

Dr. Lorenza Lazzari

Fondazione IRCCS Ca' Granda
Ospedale Maggiore Policlinico, Milano

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Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico

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Human Organoids and Assembloids: A New Era in Preclinical Research

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Conventional 2D cell cultures remain essential tools in biomedical research but fail to reproduce the cellular complexity, spatial organization, and dynamic interactions of human tissues. Animal models provide a more integrated biological context, yet interspecies differences can limit their ability to predict human responses and clinical outcomes. Human organoids and assembloids, as part of the emerging New Approach Methodologies (NAMs), offer a promising bridge between conventional in vitro systems and animal models by recapitulating key features of human tissue architecture, cellular heterogeneity, and function within a physiologically relevant 3D environment. Their increasing complexity is opening new opportunities for disease modelling, drug testing, toxicology, and regenerative medicine, while also highlighting challenges related to maturation, reproducibility, standardization, and scalability. In this presentation, these opportunities and limitations will be discussed through our experience in developing and applying human organoid and assembloid platforms, with a particular focus on pancreatic and lung models (1-5).

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