



UNIVERSITÀ
DI TRENTO

Dipartimento di
Biologia Cellulare, Computazionale e Integrata - CIBIO

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2.30 P.M.

ROOM A204 - POVO 1

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● ● FROM ORGANOIDS TO ALGORITHMS: ● ● TRANSLATIONAL PLATFORMS FOR PRECISION ● ● ONCOLOGY IN SOLID TUMORS

The complexity of solid tumors such as pancreatic ductal adenocarcinoma (PDAC) and bladder cancer demands integrative approaches that combine biological fidelity with computational power. Here we outline a **multi-modal translational framework** that leverages patient-derived organoids, spatial transcriptomics, microfluidic platforms, and artificial intelligence to accelerate personalized cancer therapy development.

AI models trained on transcriptomic data can classify tumors based on their likely therapeutic response, even when organoids cannot be produced. Meanwhile, the **iBloC (immune Bladder-on-Chip) platform** provides a microfluidic model that mimics **tumor-immune interactions in bladder cancer**, enabling dynamic drug testing and real-time molecular analysis. Together, these systems form a scalable, clinically relevant framework that combines experimental and computational methods to support personalized cancer treatment.