

Gradiant Bioconvergence

Cancer Patient-derived Organoid (PDO) Banking & AI - driven Target Discovery

Patient-derived cancer organoid (PDO) is the most advanced 3D culture system for recapitulating genetic heterogeneity of tumor tissue and microenvironment. We have successfully established over 900 PDOs from patients with lung, gastric, colorectal, pancreas, and ovarian cancers and sequenced at the whole-exome and transcriptome level. Among our repository, we have PDOs paired with non-tumor organoids as well as autologous immune cells. Our PDOs retain cancer-specific mutations, transcriptomic profile, and drug-responsiveness of original tumor tissues and their characteristics can be maintained after 20 passages of culture. In line with next-generation sequencing and drug-responsiveness data, we have also developed proprietary artificial intelligence algorithms uncovering novel oncology targets and have identified a number of targets with the potential to overcome drug resistance against EGFR inhibitors for patients with non-small cell lung cancer. We are validating these targets using our gene-editing PDO platform which has led to the initiation of first-in-class drug discovery programs. We hereby present the unique potential of PDOs as a platform for target discovery and validation.