MIMETAS and Pear Bio Collaborate to Transform Treatment Selection in Hard-to-Treat Cancers

18th December 2024

[London] – MIMETAS, a global leader in human 3D disease modeling, and Pear Bio, a pioneer in personalized cancer medicine, are partnering to advance the clinical relevance of microphysiological systems (MPS). Leveraging MIMETAS' OrganoPlate® Graft, Pear Bio is co-culturing patient-derived immune-microtumors to revolutionize treatment selection for cancers of high unmet need.

Addressing Challenges in Triple-Negative Breast Cancer (TNBC)

Triple-negative breast cancer (TNBC) is an aggressive subtype of breast cancer associated with a worse prognosis compared to other types. Patients with early TNBC are typically treated with a combination of chemotherapies and immunotherapies, followed by surgery. Achieving a pathological complete response (pCR), where no cancer is detected in post-surgery specimens, dramatically improves outcomes, reducing the risk of recurrence and death by 75–80% [1]. However, current therapeutic combinations yield a pCR in only about 50-60% of TNBC patients, and no test exists to determine the optimal regimen for an individual patient. Pear Bio aims to bridge this gap by utilizing its innovative immune-microtumor assay to analyze tumor samples and predict the likelihood of achieving a pCR with clinically relevant treatment combinations [2].

Revolutionizing Precision Medicine with MIMETAS GRAFT Plates

Pear Bio's early TNBC test previously relied on custom microfluidic chips, which were unable to accommodate the addition of peripheral blood immune cells and laborious to operate. Immune cells are now understood to be a critical component of cancer pathophysiology and response to treatment, particularly with the emergence of immune checkpoint therapies as a treatment option in early TNBC. MIMETAS' OrganoPlate Graft plate is enabling Pear Bio to culture and test multiple immune-microtumors in parallel, facilitating the addition of cells and compounds, allowing for a comprehensive analysis of treatment efficacy in a new cohort in our PEAR-TNBC clinical trial (Cohort B of NCT05435352). Unlike conventional biomarker-based tests, Pear Bio's method directly evaluates how a patient's tumor responds to various treatments, providing a more tailored and functional approach to therapy selection.

About MIMETAS

MIMETAS (Leiden, The Netherlands) is a global leader in human-relevant disease models for drug discovery and development. Based on its proprietary OrganoPlate® platform, MIMETAS has developed a broad spectrum of disease assays with unrivalled physiological comprehensiveness. The company deploys its disease models in partnerships with the global top-50 pharmaceutical industry to find and develop first-in-class targets and compounds. MIMETAS was founded in 2013 in Leiden, the Netherlands, and has grown into a multinational company with operations in Europe, Asia, and the USA. To learn more about MIMETAS's disease modeling capabilities and its OrganoPlate® platform, please visit www.mimetas.com.

About Pear Bio

Pear Bio delivers functional precision medicine tests and therapeutics for patients with hard-to-treat cancers. Using tumor biopsies and matched blood samples, Pear Bio creates 3D immune-microtumors to test different cancer treatments simultaneously, predicting patient responses and guiding effective therapy selection. The company characterizes surplus tissue to identify new drug targets, driving the development of novel therapeutics for patients with significant unmet needs.

References:

[1] Huang M, et al. https://doi.org/10.1158/0008-5472.CAN-20-1792.
[2] Hall et al. https://doi.org/10.1101/2024.10.25.24314885