PRECLINICA

Novel matrix and platform for live tissue culturing and preclinical drug testing

Implications: Cancer drug testing, tissue culture, cell culture, organoids
Unmet need: Preclinical models do not predict success in cancer clinical trials
IP Status: Priority patent application in preparation
Project status: Scaling-up service, business model design

Over 90% of oncology drugs fail due to lack of efficacy. Current preclinical models are too simplistic and poorly predictive leading to development of non-optimal therapeutics. In order to decrease the high failure rate, more precise and predictable preclinical models and technologies are required. At University of Helsinki and Aalto University, we have developed a preclinical model that is reliable, predictable and precise, allowing direct cost savings to pharma by reducing clinical trial costs and increasing success rates. The platform is based on a proprietary 3D matrix and access to patient-derived tumor subtype-matched live tissue explants for certain cancer types. The matrix is suitable for human and murine cancer cell lines, primary cells and tissues, as well as 3D models such as organoids. Unlike standard commercial growth matrices, the novel model enables preservation of live patient derived tissues for weeks to months and enables drug response testing without causing the cancer cells to change their behavior radically.

Pauliina Munne, Principal Investigator
Research Programs Unit, University of Helsinki

Patient-derived tumor cells sustainably grown on a well plate while preserving cell identity

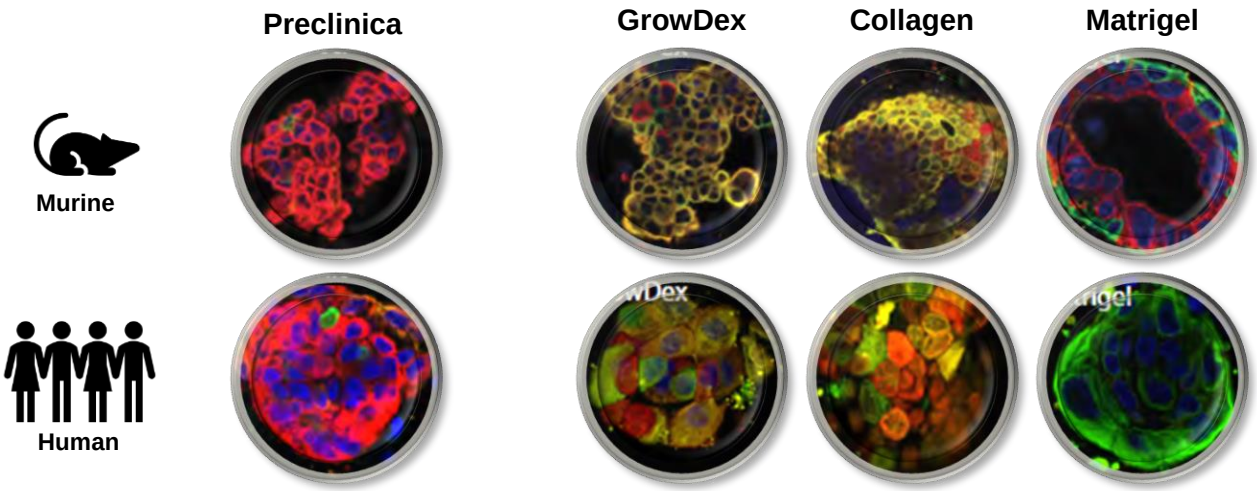

Figure 1. Human and murine breast tissues were cultured in different matrices and stained with luminal identity marker CK8, basal identity marker CK14 and DNA stain DAPI. Compared to competitors, only Preclinica matrix preserves the original tissue identity and luminal phenotype.

The culture matrix preserves / maintains

- original tumor and cellular identity
- heterogeneity of the tissue
- expression of hormone receptors (breast and prostate cancers)

✓ **The matrix has been validated with over 300 patient-derived *ex vivo* breast cancer tissue cultures**

✓ **Multiple projects with global pharma companies ongoing**

HIS HELSINKI INNOVATION SERVICES

Your commercial contact at HIS

Milla Koistinaho
Chief Operating Officer
+358 44 590 0603
Milla.koistinaho@helsinki.fi

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