



TumorMimic

Tailor 3D Culture Materials to Enable Enhanced Cancer Drug Screening

Cancer drug candidates are typically selected using flat 2D cell cultures and animal models, and currently over 95% of these drug candidates fail in the clinical trials. To address this, 3D cell cultures offer a solution.

3D cultures can encapsulate cancer cells within hydrogel materials modeling solid-cancer tissues. However, the materials often fail to model the accurate biomechanical cues of the tissues that have recently been found to regulate drug resistance of the cells. Furthermore, these materials often show variation between sample replicates and internal heterogeneity within each sample—that are mediators of cellular responses.

TumorMimic technology tailors 3D culture materials to replicate the physiological biomechanical properties of specific tissues, such as those found in triple-negative breast cancer. We use the technology as an add-on to standard live-cell microscopy, as well as a standalone instrument—both accompanied by automation software and custom-built analytics.

Our technology paves the way for enhanced control of 3D cultures, to enable superior cancer-drug screening efficacy, and accelerated discovery of new drug targets.

COMPETITIVE ADVANTAGE

- Only technology to measure and visualize cell-scale mechanics in 3D culture materials at the stiffnesses as in solid cancer biopsies (0.1 to 30 kPa in Young's moduli)
- Simultaneous multiple-location data in time lapses
- Usable before/after or during experiments

SEARCHING FOR

- Collaboration and partnerships
- Research funding applications
- Funding for a future startup
- Input from key industry areas to push our invention to the market

IPR STATUS

- Three patents pending (2022 – present)

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