

Vascularized Tumor Spheroids for Drug Screening

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Abstract

The field of microfluidics-based three-dimensional (3D) cell culture systems is rapidly progressing from academic proof-of-concept studies to valid solutions to real-world problems. Polydimethylsiloxane (PDMS)-based microfluidics platforms have been widely adopted for tumor-on-a-chip systems. However, due to the inherent material limitations that make it difficult to scale-up production, PDMS has not been widely used in standardized commercial applications for preclinical screening testing. In this presentation, injection-molded tumor spheroid chip made of polystyrene (PS) in a standardized 96-well plate format with a user-friendly design. Spontaneous liquid patterning is achievable with high repeatability. To demonstrate the feasibility of the device, we fabricated array of vascularized tumor spheroids and developed a 3D tumor angiogenesis model for drug screening. This model is easy- and ready-to-use, and suitable for mass-production systems, with the ability to deliver robust and reproducible results.

Biography

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