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Tissue Orb - A Spherical Microfluidic Tissue Chip

Tech ID: 34428 / UC Case 2020-258-0

TECHNOLOGY DESCRIPTION

The Tissue Orb is an innovative spherical microfluidic tissue chip designed to enhance the self-assembly of organoids into macroscopic, functional tissue structures. By providing a three-dimensional (3D) environment that eliminates physical biases and encourages uniform organoid distribution, this technology leverages cells’ natural ability to self-organize into complex tissues, including microvasculature, organ-specific parenchyma, and native extracellular matrix. The Tissue Orb features a central microporous conduit mimicking a blood vessel, enabling physiologic microfluidic flow to support tissue development. Currently at the proof-of-concept stage, this invention offers a novel approach to tissue engineering by optimizing organoid interaction dynamics in microgravity or microgravity analogs, setting it apart from other tissue culture systems.

STAGE OF DEVELOPMENT

proof-of-concept

RELATED MATERIALS

- ▶ [NPR Interview: Scientists are looking into the benefits of growing human tissue in space](#) - 11/04/2024

DATA AVAILABILITY

PATENT STATUS

Patent Pending

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