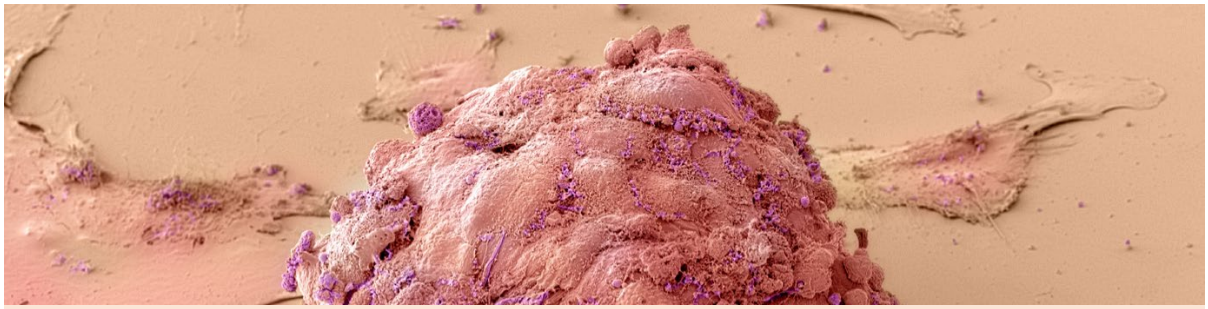


3D Frontiers InFocus

3D *in vitro* technology news | November 5, 2020

Curated for you by inSphero

UNDER THE MICROSCOPE

From lab-grown brains and lungs to leukemia-on-a-chip

Frank Junker, PhD, MBA
Chief Business Officer at InSphero

Hi reader,

In this issue of *InFocus* | 3D *In Vitro* News I would like to draw your attention on the following selected topics:

Can in vitro brain organoids become conscious? An interesting question from the authors, as these organoids can produce coordinated waves of activity, mimicking those seen in premature babies.

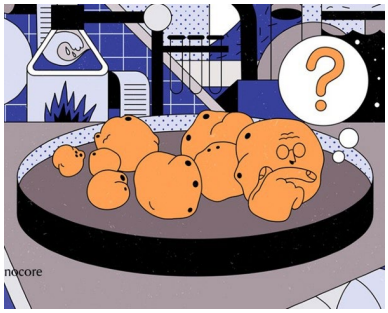
Lab-grown Mini-Lungs for studying SARS-CoV-2 infection hold great potential to better understand the disease.

I am also very excited to share the news with you about a **Leukemia-on-a-chip** mapping the pathophysiology and heterogeneity of leukemic bone marrow niches.

I hope you find some inspiring ideas in the presented articles and stay tuned for the next update in two weeks.

FRESH FROM THE PRESS

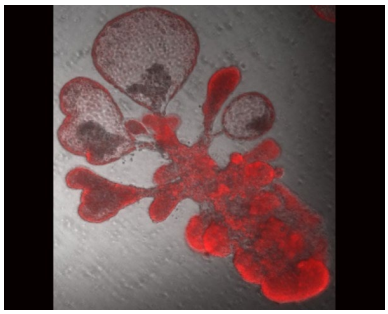
Can lab-grown brains become conscious?



The idea of bodiless, self-aware brains is already on the minds of many neuroscientists and bioethicists. Human brain organoids coordinate electrical activity, which is one of the properties of a conscious brain.

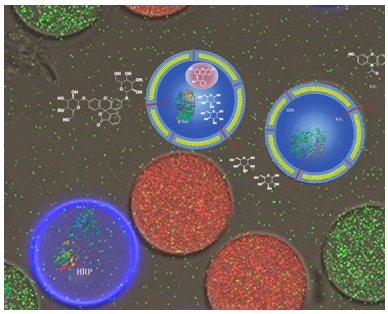
INSIGHTS FROM RESEARCH

Lab-Grown Mini-Lungs Mimic the Real Thing - Right Down to Covid Infection



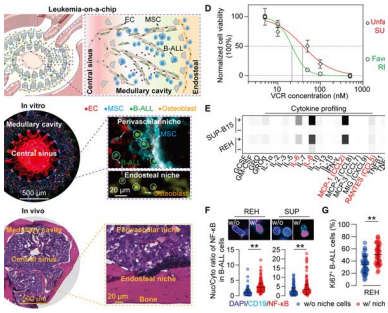
A team of Duke University researchers has developed a lab-grown living lung model that mimics the tiny air sacs of the lungs where coronavirus infection and serious lung damage take place.

An Artificial Cell on a Chip



Researchers at the University of Basel have developed a cell on a chip. It is useful for studying processes in cells, the development of new synthetic pathways for chemical applications or for biologically active substances in medicine.

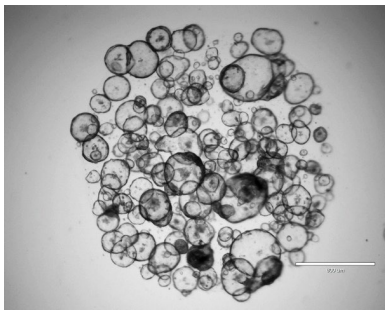
Leukemia-on-a-chip: Dissecting the chemoresistance mechanisms in B cell acute lymphoblastic leukemia bone marrow niche



A unique 3D organotypic leukemia-on-a-chip microphysiological system that maps the *in vivo* pathophysiology and heterogeneity of leukemic BM niches. Authors show a preclinical proof of concept utility of this model.

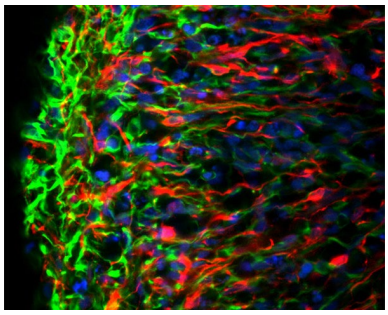
INDUSTRY REPORTS

Spheroids, Organoids Replacing Standard Cultures for Cell-Based Assays



2D cell cultures lack the structure, function, dimensionality, cellular diversity, and cell-cell interactions that make living tissue unique. 3D cell cultures better capture *in vivo* conditions and are poised to improve drug screening.

Midbrain Organoids for Automated Chemical Screening and Disease Research



Max Planck Institute for Molecular Biomedicine has succeeded in using human cells to produce midbrain organoids in a fully automated process. These can be produced, grown, and analyzed in detail within a high-throughput workflow.

WHAT WE ARE READING

- A human tissue screen identifies a regulator of ER secretion as a brain size determinant
- OrganoidTracker: Efficient cell tracking using machine learning and manual error correction
- Engineering Liver Microtissues for Disease Modeling and Regenerative Medicine

THE FUTURE OF *IN VITRO* RESEARCH IS 3D

Join the movement

Developed with care by:
InSphero AG, Wagistrasse 27A, 8952, Schlieren, Switzerland
info@newfrontiersin3d.com