

In vitro organ model research trends

February 7 2020



Credit: Mary Ann Liebert, Inc., publishers

Two distinct approaches are predominantly used to recapitulate physiologically relevant in vitro human organ models. Organoids use stem cells to grow self-assembled replica organs through directed differentiation, whereas the organ-on-a-chip approach involves microfluidics and carefully controlled, 3-D-printed architecture and assembly. It is difficult to assess and compare each strategy's overall influence with the increasing pace of discovery, but a new study using bibliometric analysis of nearly 3,000 research and review articles illuminates research trends. This work is reported in *Tissue Engineering*.

In "Global Trends of Organoid and Organ-on-a-chip in the Past Decade: A Bibliometric & Comparative Study", Pu Chen, Ph.D., Wuhan University School of Basic Medical Sciences, China, and coauthors present the results of their literature-based investigation. The authors identify research hotspots and their evolution, different scientific areas being influenced, and global trends for both [organoid](#) and organ-on-a-chip models. A thorough record is included of the most cited studies, influential authors and institutions, and the most relevant journals for each technique. Ultimately, the authors provide a useful framework for appreciating the unique trajectory of both approaches and also reveal a growing trend of combining the two methods.

"Organoids and Organ-on-a-chip mimic the cellular organization and physiology of native tissue," says *Tissue Engineering* Methods Co-Editor-in-Chief John A. Jansen, DDS, Ph.D., Professor and Head, Radboud University Medical Center, Netherlands. "Therefore, they are one of the major breakthrough technology platforms for [tissue engineering](#) studies."

More information: Zhen Wang et al, Global Trends of Organoid and Organ-On-a-Chip in the Past Decade: A Bibliometric and Comparative Study, *Tissue Engineering Part A* (2019). [DOI: 10.1089/ten.tea.2019.0251](#)

Provided by Mary Ann Liebert, Inc

Citation: In vitro organ model research trends (2020, February 7) retrieved 2 May 2024 from <https://medicalxpress.com/news/2020-02-vitro-trends.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.