Special Issue

Organoids and Cancer Models

Message from the Guest Editor

Patient-derived model systems are needed for modeling human diseases and precision medicine. Genomics-based precision oncology only helps 2–20% of patients with solid cancer, and as such, functional diagnostics and patient-derived models are needed for precision cancer biology. Induced pluripotent stem cells (iPS), organoids, and conditional reprogramming (CR) are currently used widely for patient-derived cell models for disease and precision medicine. Both organoids and CR technologies have been cited in two NCI programs, the PDMR (Patient-Derived Cancer Model Repository) and HCMI (Human Cancer Models Initiative), the latter of which will be distributed through the ATCC. These cells can be easily manipulated in vitro, and thus, these patient-derived cells could be used for next-generation disease models. In this Special Issue, we will focus on the applications of organoids and other reprogrammed cells in cancer modeling and drug discovery. **Keywords**

- organoids
- iPS (induced pluripotent stem cells)
- CRC (conditionally reprogrammed cells)
- air–liquid interface cultures
- circulating tumor cells
- cancer modeling
- drug discovery

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Deadline for manuscript submissions

closed (30 June 2024)

Organoids

an Open Access Journal by MDPI

Indexed in Scopus

mdpi.com/si/146291

Organoids
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About the Journal

Message from the Editor-in-Chief

Functional human 3D tissue models are attractive platforms for disease studies, drug development and toxicity testing. They serve as a bridge between cell cultures, animal models and clinical trials. Such models are called organoids. Numerous scientists worldwide are currently researching the generation of new complex organoid models and improving culturing conditions to handle them in a way that is reproducible, cost-effective, and easy. Achieving this goal is still a major challenge, but the organoid field has developed rapidly in recent years, reaching a new level of complexity and playing a growing role in medical research. Organoids' goal is to create a platform to present new and exciting data covering all aspects of organoid, assembloid, embryoid, or organ-on-a-chip research.

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