Special Issue

Organs-on-chips

Message from the Guest Editors

Recent advances in microsystems technology and cell culture techniques have led to the development of organ-on-chip microdevices that produce tissue-level functionality, not possible with conventional culture models, by recapitulating natural tissue architecture and microenvironmental cues within microfluidic devices. The organ-on-chip microdevices have great potential to promote drug discovery and development, to model human physiology and disease, and to replace animal models for efficacy and toxicity testing. Recently, induced pluripotent stem (iPS) cells have been leveraged to develop organs-on-chips, which enable various types of organ models and disease models not possible with primary cells and cell lines. This Special Issue seeks to showcase research papers, short communications, and review articles that focus on: (1) microdevices to mimic or control cellular microenvironment; (2) microdevices to evaluate interactions between different organ models; (3) microdevices to maintain iPS cells or iPSC-derived cells; and (4) sensors and techniques to evaluate drug efficacy or toxicity.

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