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State-of-the-Art of Cell Cultures in Drug Validation and Toxicity Assessment

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Message from the Guest Editors

Chemical risk assessment has relied on animal testing for decades. The system's overall performance, sustainability, relevance and ethics are being questioned. To achieve these goals, new prediction models should consider more efficient safety assessments.

A good *in vitro* model should be as close as possible to *in vivo* conditions to better reproduce the response of the organism. Therefore, translation into 3D-reconstructed model tissues from primary human cells enables microphysiological disease modelling, drug discovery and toxicity testing, as they are increasingly integrating advanced human cell culture systems and techniques, which include induced pluripotent stem cells (iPSC), 3D cultures and organoids (from healthy or cancer cells), co-culture systems, microfluidics and multiorgan chips.

This Special Issue is dedicated to collating information on state-of-the-art cell culture models and techniques. We will highlight the current knowledge and future potential of cell cultures, spotlighting a unique tool to test the effect of new target drugs and study *in vitro* toxicity assessment, which will provide novel insights into the field of cellular biology.



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Special Issue



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Cells has become a solid international scientific journal that is now indexed on SCIE and in other databases. We have successfully introduced a special issues format so that these issues serve as mini-forums in specific areas of cell science. *Cells* encourages researchers to suggest new special issues, serve as special issues editors, and volunteer to be reviewers. Our main focus will remain on cell anatomy and physiology, the structure and function of organelles, cell adhesion and motility, and the regulation of intracellular signaling, growth, differentiation, and aging. We are open to both original research papers and reviews.

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