

Special Issue on
Generation of *In Vitro* Stem Cell-Derived Human Tissue Scaffold Models

CALL FOR PAPERS

For many years, experimentation with animal models has been an essential and remarkable tool that has provided pivotal breakthroughs. This line of research has been otherwise controversial. The use of animals has always been opposed by an important part of the society in western countries. In addition, although the results obtained from animal models allowed a better understanding of physiology and pathological processes, the application to humans has been erratic. The use of drugs which led to specific targets to treat pathological models in mice does not usually meet the expectations when applied to humans in clinical trials.

Despite decades of lab experimentation, the *in vitro* growth and use of tissue have recently experimented a new impulse. Better knowledge on the mechanisms and cellular components involved in homeostasis and regeneration allows now new ways of *in vitro* engineering. Isolation, characterization, and manipulation of tissue stem cells provide an almost infinite and cheaper venue for medical research. Tissue scaffolds, decellularized tissue, new bioreactors, and the availability of well-defined stem/progenitors make the generation and/or regeneration of human tissue in the lab possible. Consumer adapted, pathology specific, gene manipulated stem cells and many other possibilities arise as a plausible alternative to animals to test new drugs and assess cellular therapies. New research is improving the conditions and translating the known molecular and cellular networks into accommodating the *in vitro* conditions to create more physiological environments that mimic *in vivo* processes.

We intend to create a special issue that can recruit the state of the art in stem cell-derived tissue engineering, the leading paths in the generation of *in vitro* tissue models, the new advances in *in vitro* stem cell derivation, and all other research that can be contributing to the expansion and general visualization of tissue modeling.

Potential topics include but are not limited to the following:

- ▶ Generation of natural scaffolds: decellularized tissue and explants
- ▶ Optimization of bioreactors to create customized physiological or pathological environments
- ▶ Development of methods and techniques to appropriate *in vitro* stem cell differentiation
- ▶ New materials to generate artificial tissue-specific scaffolds
- ▶ Novel applications for scaffolds: tissue and pathology research, drug testing, and cell regeneration potency assessment
- ▶ *In vitro* gene manipulation methods as a putative model therapy
- ▶ Artificial bioengineered 3D printed scaffolds

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/sci/gvsc/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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