



Stem Cells International

Special Issue on
**Stem Cells as Regenerative Tools and Biological
Models for the Cardiovascular System**

CALL FOR PAPERS

Regenerative medicine is a fast paced research field, which has accomplished striking milestones in recent years by attempting to modulate the potential turnover and repair dynamics of postnatal tissues. The increasing life expectancy and the increasing number of patients affected by chronic diseases, particularly in western countries, demand for a deeper understanding of stem cells contribution to tissue homeostasis and on their beneficial therapeutic potential, especially concerning the leading causes of death worldwide which are related to cardiovascular and respiratory diseases. In fact, organs such as the heart, with marginal repair potential, are those that can benefit the most from effective regenerative medicine approaches.

Stem and progenitor cells represent key tools for the clinical translation of cardiac regenerative medicine protocols, but on the other side they are also important *in vitro* models to study biological phenomena. In fact resident progenitors and pluripotent stem cells (such as embryonic stem cells or induced pluripotent stem cells, iPS) are being used in preclinical and clinical research to design and optimize therapeutic protocols, but they are also different, albeit complementary, cellular systems to investigate basic or pathophysiologic mechanisms and pathways, in scenarios such as heart tissue homeostasis, tissue damage and cardioprotection, and pharmacological effects. Moreover, their combined use with biomaterials in experimental approaches of cardiac tissue engineering allows, among others, preclinical validation of biocompatibility.

Cardiac regenerative medicine has moved quickly forward towards clinical translation in the past ten years, but many biological and biomedical questions are still open, and many controversial issues remain debated. This special issue will be oriented to the cardiovascular research fields, attracting original papers as well as commentaries/reviews focusing on stem/progenitor cells as regenerative tools, as well as experimental models for biology and physiology.

Potential topics include, but are not limited to:

- ▶ Stem cell biology in relation to healthy or diseased conditions
- ▶ Stem/progenitor cells as models to study medical or pharmacological influences on heart tissue
- ▶ Stem/progenitor cell systems to validate biomaterials for cardiac tissue engineering
- ▶ Modeling of cardiovascular diseases using stem cell-based systems
- ▶ Stem cells as vehicles of biologically active factors (e.g., miRNAs and exosomes) to the heart
- ▶ Stem cells as therapeutic targets and players for regenerative medicine and cardioprotection
- ▶ Novel protocols for cardiac stem/progenitor cells isolation
- ▶ Comparison among different cardiovascular stem/progenitor cell populations
- ▶ Optimization of cardiac differentiation protocols

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/sci/scrt/>.

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