BioMed Research International

Hindawi

Special Issue on

# Coupling and Integration of Stem and Progenitor Cells in the Myocardium

CALL FOR PAPERS

Ischemic cardiac tissue into which exogenous stem cells "home" undergoes hypoxia, inflammation, protein degradation, apoptosis, and deposition of scar tissue. There are many potential mechanisms that may promote integration and/or loss of stem cells in this hostile environment. Recent studies demonstrate increasingly diverse roles for gap junctions and describe them as intercellular signaling complexes that alter cell function and produce "bystander effects." Cytokines and other paracrine factors released by both stem cells and endogenous cardiocytes can affect stem cell integration and cardiac function, while exosome-mediated membrane vesicle trafficking can alter cellular protein synthesis. The combined ischemic tissue response and exogenous stem cell-mediated signaling pathways contribute to the complexity of the mechanisms responsible for cellular integration and regeneration of the ischemic myocardium.

The difficulty in deciphering the mechanisms responsible for cell-cell coupling has much broader implications that are not limited to one stem cell type. Considerable attention has been directed towards therapeutic strategies using adult somatic, embryonic, and induced pluripotent stem cells. Furthermore, the ability of transplanted cells to couple and integrate *in vivo* is also dependent on the timing of cell delivery, characteristics of the cell that might promote coupling, and the method of delivery. These are critical barriers to the field and without understanding these mechanisms, regenerative therapy employing embryonic, induced-pluripotent, or adult somatic stem cells will be transient at best and potentially arrhythmogenic.

The purpose of this special issue is to publish high quality research papers as well as review articles addressing recent advances in the ability of transplanted stem cells to couple and integrate within the myocardium. Original, high quality contributions that are not yet published or that are not currently under consideration by other journals or peer-reviewed conferences are being solicited.

Potential topics include but are not limited to the following:

- "Bystander effects" of cell-cell coupling
- Cytokine/chemokine secretion and paracrine effects
- Gap junctions and cell integration
- Cell-to-cell cross-talk
- Effect of hypoxic environments on cell survival and gene expression
- Chemotaxis and cell integration
- Exosome-mediated transfer
- Mechanisms of intracellular communication derived from preclinical studies
- Exogenous stem cell transplantation in clinical research

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/bmri/cardiology/cispc/.

**Lead Guest Editor**
David L. Geenen, Grand Valley State University, Grand Rapids, USA
*geenend@gvsu.edu*

**Guest Editors**
Robert A. Boomsma, Trinity Christian College, Palos Heights, USA
*bob.boomsma@trnty.edu*

Santipongse Chatchavalvanich, Mahidol University, Bangkok, Thailand
*santipongse.cha@mahidol.ac.th*

**Manuscript Due**
Friday, 25 August 2017

**First Round of Reviews**
Friday, 17 November 2017

**Publication Date**
Friday, 12 January 2018