



Stem Cells International

Special Issue on
**Renal Stem Cells, Tissue Regeneration, and Stem
Cell Therapies for Renal Diseases**

CALL FOR PAPERS

Kidney diseases are a global public health problem, with an incidence that has reached epidemic proportions and continues to climb in the US and worldwide. This trend is projected to grow in correlation with the global rise in the aged population and the increasing prevalence of conditions that cause renal complications, such as cardiovascular disease, hypertension, and diabetes. Current treatment options for acute and chronic kidney disease include dialysis, which is also associated with substantial morbidity and mortality, and kidney transplantation, which is limited by the supply of compatible organs. Consequently, new methods to alleviate, cure, or prevent renal disease are urgently required to reduce the exponentially growing burden due to acute and chronic kidney disorders and offer alternative therapeutic options to improve patients' survival and quality of life. Several potential regenerative cell-based therapies for the treatment of renal failure are currently under development. The first one is the direct application of stem cells (SCs) to the diseased kidney, which relies on the inherent capabilities of SCs to differentiate, organize, and integrate into the existing tissues to restore function. Another strategy is based on the prospective design of a therapeutic approach focused on modulation of endogenous kidney regenerative properties by conventional chemical and biological agents able to modulate the activity of resident progenitor cells. Indeed, a major hurdle facing nephrology researchers is that the human kidney has been classically defined as a nonproliferative and nonregenerative organ. However, there is emerging evidence that the kidney has the potential to regenerate itself starting from populations of resident progenitor cells. Finally, a number of different approaches have been applied toward tissue engineering of the kidney as a mean to replace renal function. Thus, stem cell-based therapies represent a new frontier in modern nephrology research.

We invite investigators to contribute original research articles as well as review articles providing insights into renal stem cell biology, stem cell-based strategies for renal repair, and tissue engineering.

Potential topics include, but are not limited to:

- ▶ Adult renal stem cells
- ▶ How the adult kidney responds to damage
- ▶ Pharmacological modulation of renal stem cell response to damage
- ▶ Possible cause of regenerative failure
- ▶ Genetic mouse models to study kidney regeneration
- ▶ Mesenchymal stem cells in regenerative processes
- ▶ iPS cell technology in regenerative nephrology
- ▶ Tissue engineering to establish whole kidney de novo

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