

Special Issue on Stem Cell Applications in Regenerative Medicine for Kidney Diseases

CALL FOR PAPERS

Kidney diseases affect millions of people worldwide. Acute kidney injury is associated with a high risk of mortality and increased length of hospitalization, which may ultimately progress to chronic kidney disease (CKD). Diabetes mellitus, systemic hypertension, and glomerulopathies are the main causes of CKD. CKD is incurable and therefore requires dialysis or transplant; however, the shortage of kidney donors limits the availability of transplants. Pursuing progenitor/stem cell-based kidney regenerative strategies, including organoids, scaffolds, and biological devices, is therefore a key step towards the development of bioengineered transplantable organs. Various streams of research have explored the possible application of pluripotent stem cells (SCs; embryonic SCs and induced pluripotent SCs or iPSCs), and adult or fetal tissue-specific stem cells in different strategies aimed at regenerating functioning kidneys.

This special issue invites investigators to contribute original research and review articles discussing the continuing efforts to develop novel progenitor/stem cell-based strategies to repair, replace, or regenerate kidneys following either acute or chronic injury.

Potential topics include but are not limited to the following:

- ▶ Progenitor/stem cell-based therapy and mechanistic insights, such as differentiation, migration, proliferation, engraftment, and paracrine effects using either in vitro or in vivo approaches for acute and chronic kidney diseases
- ▶ Recent advances in cellular and molecular progenitor/stem cell-based therapies to treat kidney diseases
- ▶ Novel developments in kidney tissue bioengineering techniques, which incorporate progenitor/stem cells, biomaterials, decellularized scaffolds, 3D printing tissues, and combined therapies for kidney regeneration
- ▶ Kidney organoids and 3D cultures of progenitor/stem cells as models for developing and engineering tissues and use in disease modelling
- ▶ Kidney-related single-cell and omics analyses for understanding the biological and therapeutic potential of progenitor/stem cells
- ▶ Development of physiologically relevant cellular models using progenitor/stem cells with strong translatability to human kidney pathophysiology
- ▶ Current concepts in the treatment of kidney disease using nanoparticles, siRNA, genome editing, viral, and nonviral gene therapy strategies combined to progenitor/stem cell therapy
- ▶ New insights of progenitor/stem cell-based therapy and kidney-related injury using small and large animal models
- ▶ Kidney regeneration and repair using progenitor/stem cell-based strategies in clinical trials

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

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

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