

Special Issue on
**Nanoparticle Labelling and Tracking of Stem Cells in
Preclinical and Clinical Transplantation**

CALL FOR PAPERS

Stem cell based therapies have potential in regenerative medicine to restore tissue and organ function. There are recent advances in the area of nanomedicine with a specific focus on nanoparticle (NP) mediated therapeutic delivery to cancer stem cells. In addition to the drug delivery application in nanomedicine, NP based imaging technologies have the potential for monitoring transplanted therapeutic stem cells, which will improve treatment efficiency through optimal transplantation conditions. Transplanted therapeutic stem cells can be labeled with different NP containing contrast agents for MRI and PET or bioluminescent and fluorescent agents; this would allow magnetic or optical imaging for the *in vivo* tracking of transplanted cells.

The NP-cell interactions are modulated by physicochemical properties of the NP, including size, shape, surface charge, and surface chemistry. Further research on NP-cell interactions will benefit from advances in synthesis of well defined, mono disperse NPs and the development of sophisticated analysis tools. To correlate a particular physicochemical property of a NP with biological responses, accurate characterization and analysis of the NP is essential.

This special issue aims to present recently developed novel synthesis and characterization techniques of nanostructures to determine their size, structure, and physical properties using sophisticated analysis tools which can allow elucidation of the interactions of nanomaterials with stem cells. It is open to both original research articles and review articles.

Potential topics include but are not limited to the following:

- ▶ Effect of nanoparticle size, shape, and surface chemistry on biological systems
- ▶ Quantification of size dependent interaction of nanoparticles in cells
- ▶ Size- and shape-controlled synthesis of nanostructures
- ▶ Recent advancements in the characterization techniques of nanostructures
- ▶ Emerging technologies for nanomaterials use in biomedicine
- ▶ Use of nanomaterials to improve stem cell use for targeted delivery of therapeutic agents and in regenerative medicine
- ▶ Elucidating the fate of transplanted stem cells using nanomaterials: survival, migration, proliferation, and regeneration of tissue and organs in stem cell therapy

Authors can submit their manuscripts through the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/jnp/nlt/>.

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