

## **"Advances and Prospect of Nanotechnology in Stem Cells"**

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Regenerative medicine is a specialized branch of medicine aimed at regenerate injured tissues and organs by using stem cell-based approaches. Despite progresses, many issues regarding the strategies to control functions of microenvironmental signals and novel methods to track and guide transplanted stem cells remain unsolved. At this regard, in recent years, stem cell nanotechnology has emerged as a new exciting field. In fact, many theoretical and experimental studies of interaction between nanomaterials or nanostructures and stem cells started to accumulate. The importance of nanomaterials, nanostructures, and nanotechnology to the fundamental developments in stem cell-based therapies for injuries and degenerative diseases has been recognized and has become a new interdisciplinary frontier in regeneration medicine and material science. We will review the effects of structure and properties of nanomaterials on the proliferation and differentiation of stem cells.